



***An Analysis of the Alignment of Higher Education
and the Kansas Economy***

**Kansas Board of Regents
January 2013**

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Introduction

A Strategic Agenda for Kansas Higher Education

The Kansas Board of Regents (Board) considered several strategic questions and associated data relative to issues that would directly affect the future of Kansas and the higher education system. Foresight 2020 emerged as the new strategic agenda for higher education in Kansas. The Board continues to refine its focus on these critical issues.

This report provides background data with respect to **Foresight 2020 Strategic Goal Two – *Improve alignment of the state's higher education system with the needs of the Kansas economy.*** The Board, in recognition of the extraordinary responsibility of the system to develop the workforce necessary for economic success, will *periodically review the gaps in workforce needs and the number of persons educated in higher education to fill those needs.*

Economic prosperity for individuals and the state relies on an educated workforce. For Kansans to succeed in the workforce, they must have an education that provides skills aligning with demand occupations and labor market value. While college completion typically ensures individuals will have higher average lifetime earnings than those without a degree or postsecondary certificate, different credentials and different majors lead to different careers, and significantly different earnings. Targeting public resources to meet the evolving needs of the economy can be enhanced if routine workforce data is collected, analyzed and publically reported and program adjustments are made. Students and their families can make more informed decisions on their choice of institutions and programs of study using these data. Inherently, the Kansas economy is strengthened when students choose to prepare themselves for demand occupations aligned with significant employer needs and accompanying compensation.

Research by economists and workforce experts is clear: the level of education matters and demand for postsecondary education supporting advanced skills will continue to grow. A study by Georgetown University indicates 64 percent of Kansas jobs will require some level of postsecondary attainment by 2018.¹ The public higher education system is the largest producer of individuals with the skills and credentials necessary to fuel the Kansas economy and meet projected workforce demands. The postsecondary system with a broad focus beyond specific vocational skills must balance the needs and desires of the individuals seeking education for personal growth with the demands of the skills needed in the economy. Responding to these evolving and sometimes incongruous needs can be challenging, and although most degrees and credentials have value, certain credentials are more responsive to workforce and economic demands.

The Board received the first Workforce Alignment Report in December 2011. Conclusions included:

- The level of higher education affects lifelong earnings for Kansas citizens, and the fastest growing and highest wage jobs in Kansas will require postsecondary education.
- The type of degree/certificate program completed affects lifelong earnings. The Board should ensure that Kansans are aware of these differences as they choose postsecondary programs of study.

To inform strategic direction, it is important to understand the influence of higher education and majors or programs of study on occupational earnings and career direction. This report provides information regarding workforce supply and demand, another key factor on earning potential. Informed with more comprehensive data, the Board can advocate for targeted investments in higher education which will grow the Kansas economy and have better employment outcomes for individuals.

¹ Carnevale, Anthony, Smith, Nicole and Jeff Strohl. 2010. *Help Wanted: Projections of Jobs and Education Requirements through 2018.* Georgetown University, Center on Education and the Workforce.

Project Overview

The Kansas Board of Regents has requested a report with respect to the alignment of higher education with the Kansas economy. This study serves two primary purposes – to report the workforce needs within the state (demand) and the number of individuals educated in the higher education system (supply) to fill those needs. The results of this analysis will provide insight regarding the level of alignment between higher education and the Kansas economy.

The Issue

Nationally, the Kansas higher education system has a solid reputation and is highly ranked in several measures of quality. The Board continues to advance this higher education system with strategic investments and quality improvements, striving to make Kansas a leader in connecting postsecondary education with economic development, while asking critical questions about alignment with the Kansas economy.

Many states, including Kansas have identified or suspect a potential disconnect between the output of postsecondary education and training programs and the occupational and skills demands of the high growth, high wage industries that support the state's economy. There is a looming disconnect between the skills and knowledge driving new technologies and ways of doing work, and the demographic and social factors impacting the workforce and workplaces. These factors suggest that the education systems and policies and workforce systems and policies of previous decades will be inadequate. Improving the alignment between postsecondary education and industry demand is highly complex and affected by many factors. One major difficulty is the rapidly changing labor market. Today's postsecondary students may be preparing themselves for occupations that will cease to exist within the next 10-15 years, and new occupations are likely to be created that no one can currently foresee. A balance must be struck between educating people so broadly that they have inadequate specific skills for today's labor market, and training them so specifically that they become vulnerable in the face of a changing global economy.²

A generally agreed upon view is that current and future job opportunities will continue to require more advanced and technical skills. Today's global economy requires a highly dynamic, technologically advanced workforce. Kansas Regents public institutions serve a fundamental role in educating individuals for life roles in home, community and citizenship, and also in support of the Kansas economy by preparing individuals for careers and employers' requirements. To fill both roles, institutions must have a clear understanding of their connection to the state's economy and their role in workforce development. Institutions must adapt curricula to keep pace with industry changes and adopt practices and organizational structures to meet the demands of a global economy and working learners.

Business and industry continue to report the need for qualified individuals with the talent to learn and master the necessary skills to adapt to a rapidly changing work environment. Postsecondary institutions must recognize and understand these dynamics as mission critical to meet the needs of the marketplace.

² *Positioning Kansas for Competitive Advantage, Aligning Key Industry Clusters and Occupations with Postsecondary Education and Workforce Development.* Corporation for a Skilled Workforce (CSW) for the Kansas Department of Commerce, Kansas, Inc., and the Kansas Board of Regents. 2007.

Methodology and Data

Overview

To gain a greater understanding of the labor dynamics in Kansas, a supply/demand analysis was conducted to identify potential areas of misalignment with respect to labor supply and demand. The potential labor supply data, based on completers³ of Regents institutions and programs during the 2010-2011 period, was compared to three sources of potential labor demand data for the 2010-2011 period, including: Kansas Long-term Occupational Projections, Kansas Job Vacancy Surveys, and Burning Glass Online Job Postings. Based on these comparisons, a supply/demand ratio was produced to analyze workforce alignment.

Inherently, there are many assumptions, limitations, and challenges that arise when using a statistical approach to examine workforce supply and demand, which in some cases could lead to potentially misleading results within this analysis. It must be stressed that there is no perfect statistical method to determine the exact number of graduates needed in each program to align higher education with economy; however, the results of this study do provide general direction and insight for further discussion and potential policy recommendations regarding labor supply and demand in Kansas. **(Further detail regarding the methodology and data is provided in Appendices A and B)**

About the Data

The labor supply and demand datasets used in this study, in some cases required significant data assumptions to account for the less than perfect relationship between educational programs and industry occupations. A key caveat to the relationship between supply and demand is that there can be multiple educational paths leading to multiple industry occupations. Also, in some cases educational programs may not necessarily lead to specific occupations, and rather serve as preparation for general career skills or more advanced education, which may not necessarily be accounted for within this study.

Given these shortcomings, the data and trends extracted from this study must be both objectively and subjectively reviewed when determining the direction for further discussion and potential policy recommendations.

Labor Supply Overview

Data for academic year 2010 and 2011 were utilized to develop a multi-year analysis of the potential labor supply provided by completers of Kansas Regents institutions. To determine the supply of students from each educational program and institution, the total number of completers was summed for 2010-2011 and categorized based on 6-digit CIP code. The Classification of Instructional Programs (CIP) provides a taxonomic scheme that supports the accurate tracking and reporting of fields of study and program completions activity.

³ A completer is essentially a student who received a formal degree or award during the academic year. In some cases, multiple awards or degrees can be obtained with different majors or different degree levels, resulting in multiple records for the same student within the supply data.

The following list of public universities, public community and technical colleges in Kansas that were used in this analysis:

Two-year Institutions

- Allen County CC
- Barton County CC
- Butler CC
- Cloud County CC
- Coffeyville CC
- Colby CC
- Cowley CC
- Dodge City CC
- Flint Hills TC
- Fort Scott CC
- Garden City CC
- Highland CC
- Hutchinson CC
- Independence CC
- Johnson County CC
- Kansas City Kansas CC
- Labette CC
- Manhattan Area TC
- Neosho County CC
- North Central Kansas TC
- Northwest Kansas TC
- Pratt CCC
- Salina Area Technical College
- Seward County CC/Area TS
- Washburn Institute of Technology
- Wichita Area TC

Four-year Institutions

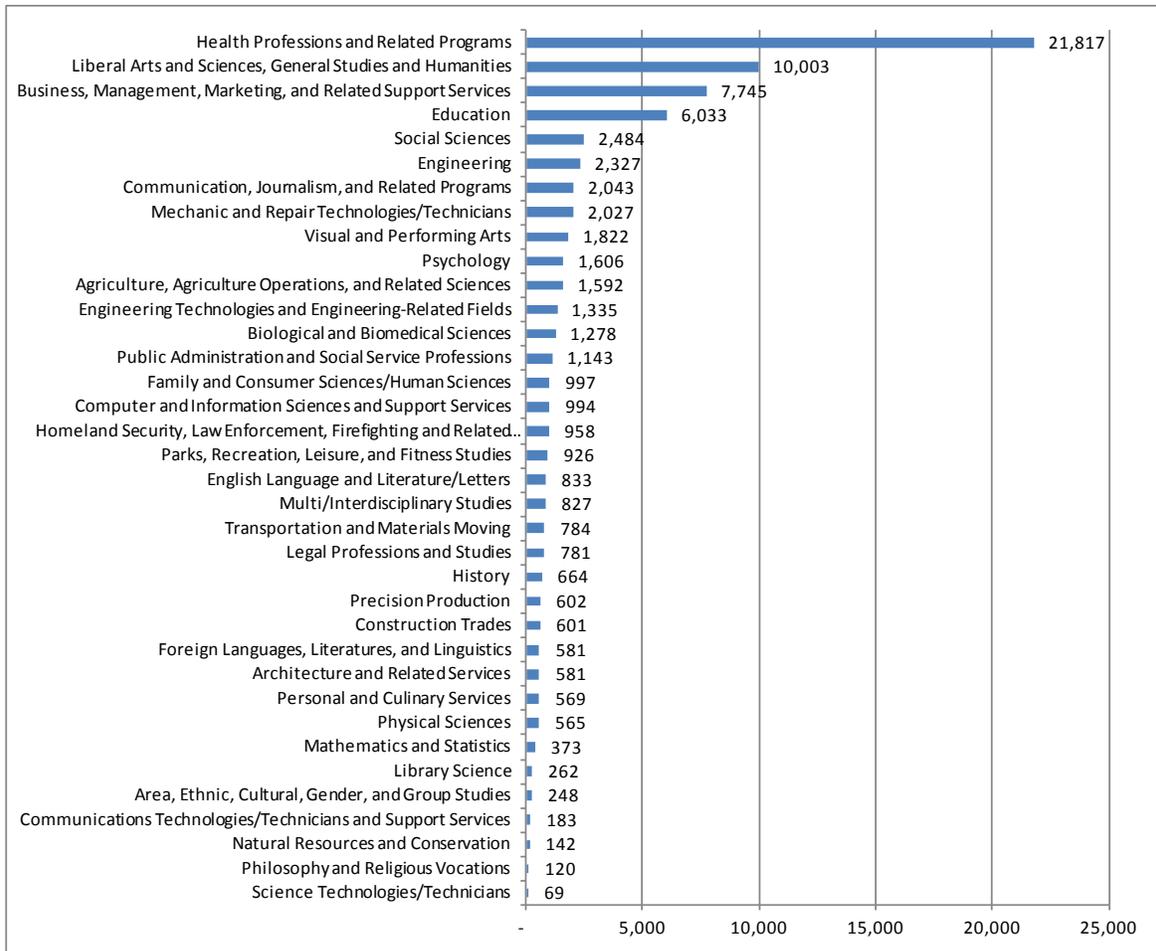
- Emporia State University
- Fort Hays State University
- Kansas State University
- Pittsburg State University
- University of Kansas
- University of Kansas Medical Center
- Washburn University
- Wichita State University

Brief Analysis of Labor Supply Data

During the two academic years 2010-2011, there were 75,921 total completers from Kansas Regents institutions within 511 unique 6-digit CIP categories. Within these 511 CIP categories, 58 categories did not have any completers, 144 CIP categories had between 1 and 9 completers, and 10 CIP categories had 1,000 or more completers. Further summarizing the data into 2-digit CIP categories, there were completers within 39 unique 2-digit CIP categories, with 14 of these CIP categories having 1,000 or more completers during this period. Eight 2-digit CIP categories did not have any completers.

Approximately 60 percent of completers for the 2010-2011 period were in four CIP categories – Health Professions/Related Programs (28.7 percent); Liberal Arts and Sciences/General Studies and Humanities (13.2 percent); Business, Management, Marketing and Related Support Services (10.2 percent); and Education (7.9 percent). The following figure illustrates total 2010-2011 completers by 2-digit CIP code (for summarization purposes, CIP categories with less than 50 completers are not included in the figure).

Figure 1. Academic Year 2010 and 2011 Completers by 2-digit CIP code



Labor Demand Overview

Labor demand data was collected from three different sources for the 2010-2011 time period and classified by occupation to develop a multi-year analysis of the potential labor demand in Kansas. Occupational data was categorized based on 6-digit Standard Occupational Classification (SOC) code. The national 2010 SOC system is used by Federal statistical agencies to classify workers into 840 detailed occupational categories for the purpose of collecting, calculating, or disseminating data. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training are grouped together.

Brief Analysis of the Labor Demand Data

Based on May 2011 State Occupational Employment and Wage Estimates, total employment in Kansas was 1,308,070, ranging from 3,140 individuals in Farming, Fishing, and Forestry Occupations to 216,200 individuals in Office and Administrative Support Occupations. Average annual wages in 2011 were \$40,030 in Kansas, ranging from \$19,580 in Food Preparation and Serving Related Occupations to \$94,630 in Management Occupations.

Examining labor demand based on occupational projections, for two years, 2010 and 2011, there were 99,376 total job projections, ranging from 572 employees needed in Legal Occupations to 14,436 employees needed in Office and Administrative Support Occupations. Examining labor demand based on job vacancies, for the 2010-2011 period, there were 62,786 total job vacancies, ranging from 110 employees needed in Legal Occupations and 9,183 employees needed in Office and Administrative Support Occupations. Examining labor demand based on online job postings, for the 2010-2011 period there were 254,075 total job postings, ranging from 1,504

employees needed in Legal Occupations and 35,138 employees needed in Healthcare Practitioners and Technical Occupations.

A brief analysis of the three labor demand datasets illustrates similar trends in labor demand within each occupational category; however, the scale of each of these trends varies greatly between datasets. In most occupational categories, online job postings yielded significantly higher figures, followed by occupational projections and job vacancies. This is likely due to differences in the methodology, processes and scope used to collect the information for each dataset. The following table summarizes labor demand by 2-digit SOC code.

Table 1. 2011 Employment and Wage Figures; 2010-2011 Two-year Occupational Data by 2-digit SOC code

2-digit SOC Code	SOC Description	Total Employment (2011)	Mean Annual Wage (2011)	Total 2-year Occupational Projections	Total 2-year Job Vacancies	Total 2-Year Online Job Postings
00	All Occupations	1,308,070	\$ 40,030	99,376	62,786	252,653
11	Management Occupations	55,370	\$ 94,630	4,636	2,648	22,280
13	Business and Financial Operations Occupations	57,140	\$ 62,110	4,808	1,990	18,989
15	Computer and Mathematical Occupations	28,500	\$ 70,110	2,530	1,785	30,372
17	Architecture and Engineering Occupations	24,710	\$ 70,900	1,728	659	9,287
19	Life, Physical, and Social Science Occupations	8,900	\$ 58,490	912	226	1,828
21	Community and Social Service Occupations	15,600	\$ 37,520	1,262	794	1,856
23	Legal Occupations	7,170	\$ 76,520	572	110	1,504
25	Education, Training, and Library Occupations	88,610	\$ 41,310	8,268	2,531	4,753
27	Arts, Design, Entertainment, Sports, and Media Occupations	17,130	\$ 38,480	1,762	1,022	4,284
29	Healthcare Practitioners and Technical Occupations	75,190	\$ 65,920	6,102	5,215	35,138
31	Healthcare Support Occupations	44,760	\$ 25,090	3,118	4,799	6,826
33	Protective Service Occupations	28,190	\$ 37,000	2,214	840	2,227
35	Food Preparation and Serving Related Occupations	110,760	\$ 19,580	10,136	5,035	7,013
37	Building and Grounds Cleaning and Maintenance Occupations	42,980	\$ 23,540	2,664	1,014	2,898
39	Personal Care and Service Occupations	40,540	\$ 21,990	4,238	3,286	2,966
41	Sales and Related Occupations	135,170	\$ 35,600	10,740	8,292	32,573
43	Office and Administrative Support Occupations	216,200	\$ 30,740	14,436	9,183	34,874
45	Farming, Fishing, and Forestry Occupations	3,140	\$ 28,920	592	209	-
47	Construction and Extraction Occupations	57,610	\$ 39,880	3,828	1,401	1,526
49	Installation, Maintenance, and Repair Occupations	54,590	\$ 42,200	3,474	2,972	9,877
51	Production Occupations	102,420	\$ 34,140	5,704	3,665	7,595
53	Transportation and Material Moving Occupations	93,370	\$ 32,040	5,652	5,110	13,987

Results

Overview

A substantial amount of data was yielded from the supply/demand analysis regarding potential mismatches between higher education and the needs of the Kansas economy. However, it must be stressed, when analyzing the results of this study, there is a less than perfect relationship between educational programs and occupations, and discussion with both industry and college representatives could provide further expertise to clarify the results of the analysis. This process could include real-time workforce intelligence, including employers' experience in recruiting/filling certain occupational classifications, economic developers' knowledge of business expansion or location plans, and site selectors' reports of trends and industry demands. **(Further detail regarding all occupations is provided in Appendix C)**

Determining Occupations with Potential Undersupply

Given the significant amount of data within the analysis, it is necessary to summarize the results into an abbreviated format for further discussion and potential policy recommendations. Depending on the parameters used to summarize the data, in some cases different methods could yield different results. This section highlights a number of occupations that emerged from the data as potential undersupply; detailed results on all occupations are provided in the appendices.

For the Board's purposes, this section focuses on five major occupational groups with the greatest indication of undersupply, selected based on supply/demand ratios, annual employment figures, and annual wages. The five areas in this summary are: Business and Financial Operations Occupations; Computer and Mathematical Occupations; Architecture and Engineering Occupations; Healthcare Practitioners and Technical Occupations; and a combination of the following SOC occupational groups: Construction and Extraction Occupations/Installation, Maintenance, and Repair Occupations/Production Occupations. Occupations included here for review within these groups had low supply/demand ratios (less than 0.7 indicates a possible undersupply). Ultimately, other factors such as total annual employment, wages, and actual supply/demand figures should be considered when weighing whether a specific occupation warrants further analysis.

Business and Financial Operations Occupations (SOC 13.0000)

Based on the methodology describe above, several occupations within the Business and Financial Operations category appeared to have a potential undersupply. Generally, potential shortages were observed in the following occupations.

Buyers and Purchasing Agents, Farm Products
Wholesale and Retail Buyers, Except Farm Products
Purchasing Agents, Except Wholesale, Retail, and Farm Products
Human Resources Specialists
Labor Relations Specialists
Logisticians
Management Analysts

Compensation, Benefits, and Job Analysis Specialists
Training and Development Specialists
Market Research Analysts and Marketing Specialists
Accountants and Auditors
Financial Analysts
Personal Financial Advisors
Credit Counselors
Loan Officers

The following table provides a sample summary of the data in this category. For a complete summary of the supply/demand data in each category, refer to Appendix C.

Briefly explaining the first line of the table, 13-1161 represents the national SOC code for the occupation Market Research Analysts and Marketing Specialists. The next three columns represent the 2011 total employment (2,940), mean annual wage (\$55,370), and the typical educational requirement (Bachelor's degree) for entry into this profession. The next column represents 2010-2011 total demand (1,247), which is a summation of Kansas Long-term Occupational Projections, Kansas Job Vacancy Surveys, and Burning Glass Online Job Postings. The next two columns represent 2010-2011 total supply (808), summarizing the completers of Regents programs described in the adjoining column. The final two columns represent the average supply/demand ratio calculated for this occupation (0.39), and a ratio below 0.7 would indicate a potential undersupply. **It should be noted that total supply and demand figures were provided for reference purposes only, and the average supply/demand ratio was based on a combination of these and other weighted figures, which are not included in the table, thus further supply/demand detail would be required for the reader to calculate the average supply/demand ratios for each occupation.**

Table 2. Sample of Business and Financial Operations Occupations with a Potential Undersupply

SOC Code	Occupational Title	2011 Total Employment	2011 Mean Annual Wage	Educational Requirement	2010-11 Total Demand	2010-11 Total Supply	CIP's Impacted	Average Supply / Demand Ratio	Alignment Determination
Business and Financial Operations Occupations									
13-1161	Market Research Analysts and Marketing Specialists	2,940	\$ 55,370	Bachelor's degree	1,247	808	Consumer Merchandising/Retailing Management; Applied Economics; Marketing/Marketing Management, General; Marketing Research; International Marketing;	0.39	potential undersupply
13-2011	Accountants and Auditors	10,190	\$ 61,030	Bachelor's degree	6,215	1,521	Accounting and Computer Science; Financial Forensics and Fraud Investigation; Accounting; Auditing; Accounting and Finance; Accounting and Business/Management; Taxation;	0.14	potential undersupply
13-2051	Financial Analysts	1,010	\$ 79,700	Bachelor's degree	1,605	872	Financial Mathematics; Accounting and Finance; Accounting and Business/Management; Finance, General; International Finance; Investments and Securities; Public Finance;	0.26	potential undersupply
13-2052	Personal Financial Advisors	1,500	\$ 94,200	Bachelor's degree	1,227	864	Finance, General; Financial Planning and Services;	0.33	potential undersupply

Based on this methodology several occupations within the four remaining occupational categories focused on in this study appeared to have potential undersupply. Generally, potential shortages were observed in the following occupations within these categories.

Computer and Mathematical Occupations (SOC 15.0000)

Computer Systems Analysts
 Computer Programmers
 Software Developers, Applications
 Software Developers, Systems Software
 Web Developers
 Database Administrators

Network and Computer Systems Administrators
 Computer Network Support Specialists
 Computer Occupations, All Other
 Actuaries
 Operations Research Analysts

Architecture and Engineering Occupations (SOC 17.0000)

Cartographers and Photogrammetrists
 Surveyors
 Chemical Engineers
 Civil Engineers
 Electrical Engineers
 Electronics Engineers, Except Computer
 Environmental Engineers
 Health and Safety Engineers, Except Mining Safety Engineers
 and Inspectors

Industrial Engineers
 Mechanical Engineers
 Nuclear Engineers
 Engineers, All Other
 Mechanical Drafters
 Electrical and Electronics Engineering Technicians
 Surveying and Mapping Technicians

Healthcare Practitioners and Technical Occupations (SOC 29.0000)

Pharmacists	Medical and Clinical Laboratory Technologists
Physicians and Surgeons, All Other	Medical and Clinical Laboratory Technicians
Physician Assistants	Diagnostic Medical Sonographers
Occupational Therapists	Emergency Medical Technicians and Paramedics
Physical Therapists	Pharmacy Technicians
Respiratory Therapists	Surgical Technologists
Speech-Language Pathologists	Veterinary Technologists and Technicians
Registered Nurses	Licensed Practical and Licensed Vocational Nurses
Nurse Practitioners	Medical Records and Health Information Technicians
Health Technologists and Technicians, All Other	

Construction and Extraction Occupations/Installation, Maintenance, and Repair Occupations/Production Occupations (SOC 47.0000, 49.0000, 51.0000)

Brickmasons and Blockmasons	Heating, Air Conditioning, and Refrigeration Mechanics and Installers
Stonemasons	Industrial Machinery Mechanics
Carpenters	Maintenance Workers, Machinery
Tile and Marble Setters	Millwrights
Paving, Surfacing, and Tamping Equipment Operators	Telecommunications Line Installers and Repairers
Operating Engineers and Other Construction Equipment Operators	Maintenance and Repair Workers, General
Electricians	Installation, Maintenance, and Repair Workers, All Other
Sheet Metal Workers	First-Line Supervisors of Production and Operating Workers
Highway Maintenance Workers	Bakers
Rail-Track Laying and Maintenance Equipment Operators	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic
First-Line Supervisors of Mechanics, Installers, and Repairers	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic
Computer, Automated Teller, and Office Machine Repairers	Machinists
Telecommunications Equipment Installers and Repairers, Except Line Installers	Patternmakers, Metal and Plastic
Avionics Technicians	Welders, Cutters, Solderers, and Brazers
Electrical and Electronics Repairers, Commercial and Industrial Equipment	Printing Press Operators
Electronic Home Entertainment Equipment Installers and Repairers	Cabinetmakers and Bench Carpenters
Automotive Service Technicians and Mechanics	Sawing Machine Setters, Operators, and Tenders, Wood
Bus and Truck Mechanics and Diesel Engine Specialists	Woodworking Machine Setters, Operators, and Tenders, Except Sawing
Mobile Heavy Equipment Mechanics, Except Engines	

Potential Oversupply

While labor oversupply was not specifically examined in-depth within these results, the potential for oversupply may exist when examining various occupations throughout this analysis. Before drawing this conclusion based on the supply/demand ratios, if an oversupply of graduates potentially exists, further, examination, both objective and subjective, of the context of this result and the conditions which led to it would be required.

In general, based on the Carnevale⁴ study of projections for skilled workforce needs in Kansas, there appears to be an undersupply of residents with college degrees at most levels of education. Furthermore, there are programs where there is no linear path to specific occupations; however, these majors often yield talented individuals who thrive in various occupations where their talents are utilized and they make contributions to the Kansas economy. Because a linear path to an occupation doesn't exist for these majors, the methodology used in this study will show these as "oversupply". These "oversupply" majors may include general studies, liberal arts, history, and various other social and psychology-related fields. Completers in these fields may have skills in problem solving, acumen in writing, analysis, communication, etc; and these skills may qualify graduates for various business functions and occupations.

⁴ Carnevale, Anthony, Smith, Nicole and Jeff Strohl. 2010. *Help Wanted: Projections of Jobs and Education Requirements through 2018*. Georgetown University, Center on Education and the Workforce.

Recommendations

General Direction and Insight for Further Discussion and Potential Policy Recommendations

The following recommendations are intended to provide general direction and insight for further discussion and potential policy recommendations with respect to labor supply and demand in Kansas.

- Share the data and results of this analysis with the public to assist students and families in making informed choices on majors and institutions of higher education. Including actual aggregate wage data for majors by occupations and institutions would also assist students considering higher education.
- Evaluate the data and potential shortages after various workforce initiatives have implemented programs to address these issues (e.g. Engineering Expansion effort, Nursing Project, Governor's Postsecondary Career Technical Education initiative, etc).
- Design and implement targeted workforce initiatives to address potential areas of undersupply. These initiatives may be similar to the Engineering or Nursing Initiatives, where need was quantified, barriers identified, and solutions were evaluated. The cost of the solution(s) and the resulting production to reduce the shortages were then quantified and presented for consideration and possible support.
- Implement an information/education career advising campaign to inform high school students and adult working learners of shortages in the workforce and where potential occupational opportunities exist.

Data/Analysis Specific Recommendations

The following recommendations are specific to answering questions regarding the labor supply and demand in Kansas, and focus on efforts for improving and building upon the results of the analysis.

- Verify the results with industry and institutional expertise to confirm/clarify the data. This process could include real-time workforce intelligence, using employers' experience in recruiting/filling certain occupations and university expertise to determine the validity of the results.
- Identify best practices in other states with respect to supply/demand alignment issues and efforts.
- Work with Regents institutions and the Board office to ensure CIP codes, program descriptions and definitions are accurate and uniform across all institutions to improve the quality of the data in the analysis.
- Include salaries and job placement data for completers and graduates to further analyze the alignment of higher education programs and majors with the Kansas economy.
- Further refine the methods used to create this analysis, such as the supply/demand ratios; using multiple years (3-4) of data to possibly minimize anomalies or short-term trends in the data; evaluating data from a regional perspective to provide greater detail; and factoring in additional variables that may impact labor supply/demand, such as overall economic conditions, unforeseen events, seasonal variation, unemployment, migration, etc.

To inform strategic direction, it is important to understand the relationship between workforce supply and demand. Informed with more comprehensive data, the Board can advocate for targeted investments in higher education supporting better outcomes for individuals and helping to build a robust Kansas economy.

Appendix A – Data Sources and Analysis Methodology

Overview

To gain a greater understanding of the labor dynamics in Kansas, a supply/demand analysis was conducted to identify potential areas of misalignment with respect to labor supply and demand. Inherently, there are many assumptions, limitations, and challenges that arise when using a statistical approach to examine workforce supply and demand, which in some cases could lead to potentially misleading results within this analysis. It must be stressed that there is no perfect statistical method to determine the exact number of graduates needed in each program to align higher education with economy; however, the results of this study do provide general direction and insight for further discussion and potential policy recommendations regarding labor supply and demand in Kansas.

The labor supply and demand datasets used in this study, in some cases required significant data assumptions to account for the less than perfect relationship between educational programs and industry occupations. A key caveat to the relationship between supply and demand is that there can be multiple educational paths leading to multiple industry occupations. Also, in some cases educational programs may not necessarily lead to specific occupations, and rather serve as preparation for general career skills or more advanced education, which may not necessarily be accounted for within this study.

Given these shortcomings, the data and trends extracted from this study must be both objectively and subjectively reviewed when determining the direction for further discussion and potential policy recommendations.

Labor Supply

Labor supply data was sourced from 2010-2011 completers⁵ from all institutions and programs, which is collected by the KBOR Data, Research and Planning Unit (DRP).

Data for academic year 2010 and 2011 was the most recent two-year period of data available, and this data was used to develop a multi-year analysis of the potential labor supply provided by completers of Kansas Regents institutions. To determine the supply of graduates from each educational program and institution, the total number of completers was summed for 2010-2011 and categorized based on the 6-digit Classification of Instructional Programs (CIP) code. The CIP provides a taxonomic scheme that supports the accurate tracking and reporting of fields of study and program completions activity. The CIP was originally developed by the U.S. Department of Education's National Center for Educational Statistics (NCES) in 1980 with revisions in 1985, 1990, 2000, and 2010.

Some modifications were made to the supply data due to improperly labeling of programs or labeling of programs in a CIP code that is no longer used. To address this issue, these programs and subsequent completers were re-categorized in a related CIP code based on the National Center for Education Statistics (NCES) 2010 CIP/SOC crosswalk.

Brief Analysis of Labor Supply Data

During the period of 2010-2011, there were 75,921 completers from Kansas Regents institutions within 511 unique 6-digit CIP categories. Within these 511 CIP categories, 58 categories did not have any completers, 144

⁵ A completer is essentially a student who received a formal degree or award during the academic year. In some cases, multiple awards or degrees can be obtained with different majors or different degree levels, resulting in multiple records for the same student within the supply data.

CIP categories had between 1 and 9 completers, and 10 CIP categories had 1,000 or more completers. Further summarizing the data into 2-digit CIP categories, there were completers within 39 unique 2-digit CIP categories, with 14 of these CIP categories having 1,000 or more completers during this period. Eight 2-digit CIP categories did not have any completers.

Comprising the largest percentage of completers was Health Professions and related programs, with 21,817 completers (28.7 percent of total completers). Approximately 60 percent of completers for the 2010-2011 period were in four CIP categories – Health Professions/Related Programs (28.7 percent); Liberal Arts and Sciences/General Studies and Humanities (13.2 percent); Business, Management, Marketing and Related Support Services (10.2 percent); and Education (7.9 percent).

Labor Demand

Labor demand data was obtained from three different sources for the 2010-2011 time period and classified by occupation to develop a multi-year analysis of the potential labor demand in Kansas. Occupational data was categorized based on 6-digit Standard Occupational Classification (SOC) code. The 2010 SOC system is utilized by Federal statistical agencies to classify workers into 840 detailed occupational categories for the purpose of collecting, calculating, or disseminating data. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training are grouped together. The three labor demand datasets are as follows:

2008-2018 Long-term Occupational Projections – The Kansas Occupational Outlook projects the total employment in Kansas over a 10-year period. Occupational and industry employment projections provide useful information for the planning and preparation of educational and training programs, assessing the need for skilled workers in the future, and studying long-range trends in occupational employment. Long-term projections are created every two years and cover a 10-year time period. Current projections cover 2008-2018. For this analysis, projections were used to develop a two-year period of data based on the average annual projections to estimate labor demand by occupation.

2010-2011 Kansas Job Vacancy Survey (JVS) – The Kansas Job Vacancy Survey provides an assessment of labor demand in the state based on a survey of Kansas employers. This survey provides information regarding the specific occupations that are in demand as well as numerous details pertaining to such openings. Details include: duration of vacancies, permanent/temporary and full-time/part-time status of vacancies, and the educational requirements, average wage offers, and benefits associated with an area's job openings. This data is essentially a "point-in-time" estimate of labor demand, and may not account for seasonal variations in hiring or one-time hiring events. For this analysis, the 2010 and 2011 surveys were combined to develop a two-year period of data based on the point-in-time survey to estimate labor demand by occupation.

2010-2011 Burning Glass Online Job Postings – Burning Glass provides a system for aggregating and reporting online job postings designed to populate a comprehensive database of real-time job opportunity information in a manner that provides as accurate representation as possible of the full scope of advertised labor demand in an area. Burning Glass uses a proprietary data collection program to identify jobs from over 17,000 websites and generate a comprehensive dataset of current job opportunities. For this analysis, total online job postings for Kansas from 2010 and 2011 were combined to develop a two-year period of data based on online job postings to estimate labor demand by occupation.

Occupational employment and wage estimates for Kansas were also used to supplement the labor demand data. This data was used to enhance the evaluation of various occupations within the supply/demand analysis. Occupational employment and wage estimates were categorized based on 6-digit SOC codes.

May 2011 State Occupational Employment and Wage Estimates – Kansas – State occupational employment and wage estimates are calculated from data collected in a national survey of employers. Data regarding occupational employment and wages are collected from employers of every size, in every state, in metropolitan and non-metropolitan areas, in all industry sectors. These estimates are cross-industry estimates; each occupation’s employment and wage estimates are calculated from data collected from employers in all industry sectors. Self-employed persons are not included in the survey or estimates. For this analysis 2011 wage and employment data were used to supplement the labor demand data and enhance the evaluation of various occupations within the supply/demand analysis.

There were some modifications made to the demand data, due to occupations being categorized in a SOC code that is no longer being used. To address this issue, these occupations and subsequent data were re-categorized in a replacement 2010 SOC.

Brief Analysis of the Labor Demand Data

Based on May 2011 State Occupational Employment and Wage Estimates, total employment in Kansas was 1,308,070, ranging from 3,140 individuals in Farming, Fishing, and Forestry Occupations to 216,200 individuals in Office and Administrative Support Occupations. Average annual wages in 2011 were \$40,030 in Kansas, ranging from \$19,580 in Food Preparation and Serving Related Occupations to \$94,630 in Management Occupations.

Examining labor demand based on occupational projections, for the 2010-2011 period, there were 99,376 job projections, ranging from 572 employees needed in Legal Occupations to 14,436 employees needed in Office and Administrative Support Occupations. Examining labor demand based on job vacancies, for the 2010-2011 period, there were 62,786 job vacancies, ranging from 110 employees needed in Legal Occupations and 9,183 employees needed in Office and Administrative Support Occupations. Examining labor demand based on online job postings, for the 2010-2011 period there were 254,075 job postings, ranging from 1,504 employees needed in Legal Occupations and 35,138 employees needed in Healthcare Practitioners and Technical Occupations.

A brief analysis of the three labor demand datasets illustrates similar trends in labor demand within each occupational category; however, the scale of each of these trends varies greatly between datasets. In most occupational categories, online job postings yielded significantly higher figures, followed by occupational projections and job vacancies. This is likely due to differences in the methodology, processes and scope used to collect the information for each dataset.

Linking Workforce Supply and Demand

To analyze workforce alignment, a crosswalk developed by the National Center for Education Statistics (NCES) and the U.S. Bureau of Labor Statistics (BLS) to link workforce supply and demand. The CIP/SOC crosswalk is intended to provide users with a resource for relating the Classification of Instructional Programs (CIP) with the Standard Occupational Classification (SOC). The crosswalk establishes relationships that indicate which programs (CIP’s) directly prepare individuals for certain occupations (SOC’s). Based on NCES and BLS methodology, potential uses for the CIP/SOC crosswalk include:

- Presenting data on and analyzing the relationship of education and training programs to the labor market;
- Analyzing labor market supply/demand conditions and trends;
- Providing information on the labor market for use in making education and training program funding decisions, including expansion or contraction of program offerings;
- Providing information on tasks and other characteristics of occupations related to programs for use in developing and maintaining education and training curriculum;

- Providing information and guidance to individuals in making decision about careers and education or training choices or conducting a job search; and
- A basis for mapping CIP and SOC to career clusters and career pathways.

Even though there is a less than perfect relationship between educational programs and industry occupations, the CIP/SOC crosswalk can be an important tool in relating data about educational programs to data about industry occupations and the labor market. This type of analysis can assist in the decision-making process for institutions, such as whether to expand, contract, startup, or end specific programs.

Determining Alignment – Supply/Demand Ratios

To compare the number of completers (supply) to the number of occupations (demand), three supply/demand ratios were produced based on the CIP/SOC crosswalk, and the average of these ratios was used to make a determination on alignment. The CIP/SOC crosswalk provided methodology to match completers of educational programs with the industry occupations they would qualify for. The results based on this methodology assume Kansas is a closed system, i.e. no migration of potential workers, which in reality we know is not the case. Other assumptions and limitations are discussed later.

The three supply/demand ratios and definitions are as follows:

Ratio 1	Total Supply / Total Demand
Ratio 2	Weighted Supply / Total Demand
Ratio 3	Weighted Supply / Average Demand

Total Supply is the total number of completers during the 2-year period that are qualified for a given occupation, based on the crosswalk.

Total Demand is the sum of the occupations based on the three demand datasets. The projection data is based on annual averages, the vacancy data is based on point in time data, and the online data is based on actual online job postings. Inherently, the methods used to collect the datasets and the results obtained may differ; however, they provide a degree of balance for this analysis.

Weighted Supply is the total number of completers during the 2-year period that are qualified for a given occupation, divided by the number of times that specific CIP code is listed in the crosswalk to qualify for a specific SOC occupation. Some CIP codes match several SOC codes, some match one SOC code, and some do not match any SOC codes. Weighted supply is intended to account for the less than perfect relationship between educational programs and occupations, as multiple educational programs can lead to multiple occupations. Rather than develop a complex assumption based on factors that may be outside the scope of this analysis, this provides a simple method that accounts for the fact that all completers within a given program may not necessarily be available for a given occupation, depending on their individual decisions.

Average Demand is the average of the occupations in the three demand datasets. Given there is variation in the datasets, both in actual figures and the methodology behind the datasets, average demand is intended to provide a simple method to account for outliers or other anomalies within each dataset. Once again, rather than develop a complex assumption based on factors that may be outside the scope of this analysis, this provides a simple method that may minimize the impact of outliers on the results of the study.

Following the calculation of these ratios, the average of the three ratios was used to determine alignment. In a closed system, a supply/demand ratio of 1 would indicate alignment; a value below 1 would indicate an undersupply of potential workers; and a value above 1 would indicate an oversupply of potential workers. However, with this study these specific values may not accurately depict workforce alignment and there may be other factors to consider when evaluating workforce supply and demand. There is a less than perfect relationship between educational programs and occupations, the individual choices that graduates make regarding the use of their education, and the preferences of employers when selecting individuals for a given occupation. Other factors outside the scope of this analysis may also further impact workforce supply and demand, such as overall economic conditions, unforeseen events, self-employment, seasonal variation, unemployment, migration, etc.

Therefore, to determine alignment, an average supply/demand ratio value between 0.7 and 2.1 was considered “aligned,” a value below 0.7 was considered to be a “potential undersupply,” and a value above 2.1 was considered to be “not aligned,” or potential oversupply. Where supply or demand figures weren’t available, this value was labeled “undetermined.” In certain cases, outliers within either the supply or demand data may generate results that may not necessarily be reflective of the actual conditions within an occupational category; further analysis would be required in these scenarios.

In summary, several ratios and methods were explored during this analysis, and these three ratios, in general seemed to capture the overall trends and relationships in most cases between specific educational programs (supply) and specific occupations (demand). This does not necessarily represent a perfect method, nor do the resulting figures necessarily represent the actual number of completers required to fill occupations in a given field; however the general results, combined with supplemental information such as wage and employment figures, can be both objectively and subjectively reviewed to provide policymakers with a basis for further discussion and potential policy recommendations.

Limitations to this Approach

Several limitations have been previously mentioned in this report regarding the use of a statistical method to determine the number of graduates in each program needed to align higher education with the Kansas economy. Inherently, there are many assumptions, limitations, and challenges that arise using a statistical approach to examine workforce supply and demand, which in some cases could lead to potentially misleading results within this analysis. The labor supply and demand datasets used in this study, in some cases required significant data assumptions to account for the less than perfect relationship between educational programs and industry occupations. A key caveat to the relationship between supply and demand is that there can be multiple educational paths leading to multiple industry occupations. This study assumes there are linear paths between education and occupations, and frequently, this is not the case. Also, many programs may not necessarily lead to specific occupations, and rather serve as preparation for broad general career skills or more advanced education, which this model analysis does not account for.

Other limitations to consider when reviewing the results of this study include⁶:

- Unforeseen events can impact labor projections, for example: a nationwide recession, development of new technologies, world events, the opening or closure of businesses, or even changes in company policies that impact hiring levels and occupational needs.
- Job vacancy data is “point in time” and doesn’t account for seasonal variations in hiring or one-time hiring events. Occupational projections are annual averages. Online job postings are based on postings

⁶ Several limitations are based on the 2007 *Positioning Kansas* report.

over the two-year period, and do not include jobs that are not posted in an electronic format; there is also a chance of duplication in within this data in spite of de-duplication algorithms. Ultimately, while none of the datasets are perfect, each of them bring unique attributes to the study and provide a degree of balance within the demand data.

- The data used in this study covers a two-year period (2010-2011). One could argue whether the supply and demand data is truly representative of the period of analysis, or could be representative of past or future years.
- Some graduates or completers may already be employed before they finish their program of study and are not technically added to the labor supply. Some graduates or completers are not seeking employment or chose self-employment. Other students stop out of college for immediate employment before graduating and are not counted in the supply.
- Not every graduate will reside in Kansas and become part of the labor force to fill industry demand. Some graduates will move out of the state. This study assumes Kansas is a closed system, when in reality it is not. Conversely, graduates from outside the state may move into Kansas and become part of the labor force to fill market demand. This in turn, means that although fewer graduates are being produced than job openings, these jobs may not remain vacant. This is especially true for high paying professional jobs. Typically, recruitment for low-level jobs is usually local, and recruitment for mid-level jobs may be the state or nation.
- A geographic imbalance may create a shortage of workers in some regions even though the data suggests no shortage. E.g. the supply-demand figures indicate an adequate supply; however, the workers are located in eastern Kansas creating shortages in western Kansas.
- Demographics and the impact of the baby boomer generation will likely impact workforce supply and demand. Whether and when this population retires or maintains employment will have an impact on the state's workforce.
- Evidence of an oversupply within a given occupation doesn't mean a program leading to that occupation should be eliminated. There is a need for replacements and for maintaining a pipeline of qualified workers. Modifications such as a smaller pipeline may be a solution, as it is simpler to build up an existing program than to restart a program.
- Multiple educational paths (CIP) may lead to multiple occupations (SOC). With this scenario, some occupations could be in oversupply and others could be aligned or in undersupply. Some CIP codes may not align with any SOC codes; however, it is safe to assume that graduates in these programs will still find employment.
- Interdisciplinary learning is becoming critical in the workplace. An individual may have a certificate or degree in a certain program, but still need significant coursework in other programs to qualify for an occupation. Likewise, the data reports supply in "most recent degree" whereas a graduate may be working in an occupation they prepared for in an earlier credential (e.g., a technical worker completing a business degree).
- Many occupations have a history of going through cycles of over- and under-supply, for example the aviation and energy sectors.

- Shortages may result from demand-side problems rather than supply-side problems. Addressing issues such as high turnover rates or wage misalignment may be a more effective way to alleviate shortages in some occupations rather than making continuing investments to increase the labor supply pipeline.
- While this study includes all completers from all programs and institutions from 2010-2011, it is inherently difficult to evaluate alignment at the 4-year university level, as some students pursue undergraduate degrees only as preparation for a graduate or professional degree, e.g. biology or pre-med. Some students also go on to occupations that may not necessarily match the CIP/SOC crosswalk methodology.

Given these shortcomings, the data and trends from this study must be both objectively and subjectively reviewed when determining the direction for further discussion and potential policy recommendations.

Background Information – Positioning Kansas for Competitive Advantage, September 2007

Overview

During 2007, the Kansas Department of Commerce, Kansas, Inc. and the Kansas Board of Regents contracted with the Corporation for a Skilled Workforce (CSW) to conduct a supply-demand analysis to identify possible misalignments between the postsecondary system and employer needs. The current study is based on methodology from the 2007 study, and differences in methodology for the supply/demand analysis are summarized later in this report.

The 2007 study combined Integrated Postsecondary Education Data System (IPEDS) data on program completions in Kansas in 2006 (supply) with two labor demand sources – ten year occupational projections and point-in time job vacancies. From this, two ratios were produced, one for projections and one for vacancies that compared the annual number of Kansas graduates from CIP programs related to each occupation.

A key finding in the 2007 study was that undersupply was more often related to technical occupations requiring less than four years of postsecondary education. Generally the study noted a shortage of individuals with knowledge and skills in the following areas:

Accounting-related; Aviation-related; (Some) Agricultural-related; Business/Banking/Finance; Skilled Trades; (Some) Information Technology-related; Protective Services-related; Engineering; and Health Care-related

The study noted the importance of finding the root causes of occupational shortages, which may or may not be related to education, training programs, and opportunities. Examples of root causes of occupational shortages included a lack of career awareness; lack of training capacity; high dropout rate from training; outmigration; inadequate job matching; stress conditions on the job; non-competitive wages; non-competitive benefits; location or geographic concerns, and lack of retirement incentives. The study noted when considering the areas over- and under-supply, policymakers should keep in mind that a balance must be struck between educating individuals so broadly that they have inadequate specific skills for the labor market, and training them so specifically that they become vulnerable in the face of a changing global economy.

Differences in Methodology – Positioning Kansas Vs this Study

As previously noted, there are several limitations when using a statistical method to determine the number of graduates in each program needed to align higher education with the Kansas economy, as there is a less than perfect relationship between educational programs and occupations. This is a brief overview of the differences

in statistical methodology between the *2007 Positioning Kansas* report and the current study. While the methodology used in each study has both strengths and weaknesses, this section is not necessarily intended to evaluate these variations, but rather to point out the differences in processes used to arrive at the results.

- The 2007 study used a one-year period of data (2006) to analyze labor supply and demand, while the current study used a two-year period of data (2010-2011) to broaden the scale and scope of the study. The current study also used supply data directly from the Regent's DRP Unit, while the 2007 study used IPEDS data, which is produced from the Regent's data.
- The 2007 study used two demand datasets – occupational projections and job vacancies. The current study used these demand datasets, plus a third dataset consisting of online job postings over the two-year period to provide a broader perspective with respect to the demand data.
- The 2007 study made supply assumptions for educational programs that lead to multiple occupations based on the percentage of graduates that would likely go into each specific occupation. This distribution was based on relative demand for those occupations. For the current study, a simpler method was preferred to account for the less than perfect relationship between educational programs and occupations. Rather than make assumptions based on factors that may be outside a combination of three supply/demand ratios were produced based on total supply, total demand, weighted supply, and average demand to provide a variety of scenarios that may or may not occur within the workforce supply/demand relationship. There are strengths and weaknesses associated with each method, and either method should provide enough information to make a judgment on workforce alignment.
- The 2007 study used two ratios to compare supply and demand, one based on occupational projections and one based on job vacancies to make a judgment on workforce alignment. The current study used these two ratios, plus a third ratio based on online job postings to make a judgment on workforce alignment. These three ratios were then averaged to produce a final supply/demand ratio to determine alignment. Beyond this, the thresholds for determining alignment were similar, with an average supply/demand ratio value between 0.7 and 2.1 was considered “aligned,” a value below 0.7 was considered to be a “potential undersupply,” and a value above 2.1 was considered to be “not aligned,” or potential oversupply.

Appendix B – Supporting Figures and Tables

The following section provides various tables and figures relevant to the supply/demand analysis. In some cases this data has already been presented in the study and is provided in a different format to better illustrate the data.

Occupational Data

The following figures further illustrate the occupational data provided in Table 1. The figures summarize total employment, average annual wage, and labor demand by 2-digit SOC code. Employment and wage data is based on May 2011 State Occupational Employment and Wage Estimates, and labor demand is based on the three labor demand datasets (occupational projections, job vacancies, and online job postings).

Table 1. 2011 Employment and Wage Figures; 2010-2011 Two-year Occupational Data by 2-digit SOC code

2-digit SOC Code	SOC Description	Total Employment (2011)	Mean Annual Wage (2011)	Total 2-year Occupational Projections	Total 2-year Job Vacancies	Total 2-Year Online Job Postings
0	00-All Occupations	1,308,070	\$ 40,030	99,376	62,786	252,653
11	11-Management Occupations	55,370	\$ 94,630	4,636	2,648	22,280
13	13-Business and Financial Operations Occupations	57,140	\$ 62,110	4,808	1,990	18,989
15	15-Computer and Mathematical Occupations	28,500	\$ 70,110	2,530	1,785	30,372
17	17-Architecture and Engineering Occupations	24,710	\$ 70,900	1,728	659	9,287
19	19-Life, Physical, and Social Science Occupations	8,900	\$ 58,490	912	226	1,828
21	21-Community and Social Service Occupations	15,600	\$ 37,520	1,262	794	1,856
23	23-Legal Occupations	7,170	\$ 76,520	572	110	1,504
25	25-Education, Training, and Library Occupations	88,610	\$ 41,310	8,268	2,531	4,753
27	27-Arts, Design, Entertainment, Sports, and Media Occupations	17,130	\$ 38,480	1,762	1,022	4,284
29	29-Healthcare Practitioners and Technical Occupations	75,190	\$ 65,920	6,102	5,215	35,138
31	31-Healthcare Support Occupations	44,760	\$ 25,090	3,118	4,799	6,826
33	33-Protective Service Occupations	28,190	\$ 37,000	2,214	840	2,227
35	35-Food Preparation and Serving Related Occupations	110,760	\$ 19,580	10,136	5,035	7,013
37	37-Building and Grounds Cleaning and Maintenance Occupations	42,980	\$ 23,540	2,664	1,014	2,898
39	39-Personal Care and Service Occupations	40,540	\$ 21,990	4,238	3,286	2,966
41	41-Sales and Related Occupations	135,170	\$ 35,600	10,740	8,292	32,573
43	43-Office and Administrative Support Occupations	216,200	\$ 30,740	14,436	9,183	34,874
45	45-Farming, Fishing, and Forestry Occupations	3,140	\$ 28,920	592	209	-
47	47-Construction and Extraction Occupations	57,610	\$ 39,880	3,828	1,401	1,526
49	49-Installation, Maintenance, and Repair Occupations	54,590	\$ 42,200	3,474	2,972	9,877
51	51-Production Occupations	102,420	\$ 34,140	5,704	3,665	7,595
53	53-Transportation and Material Moving Occupations	93,370	\$ 32,040	5,652	5,110	13,987

Figure 2. 2011 Total Employment by 2-digit SOC Category

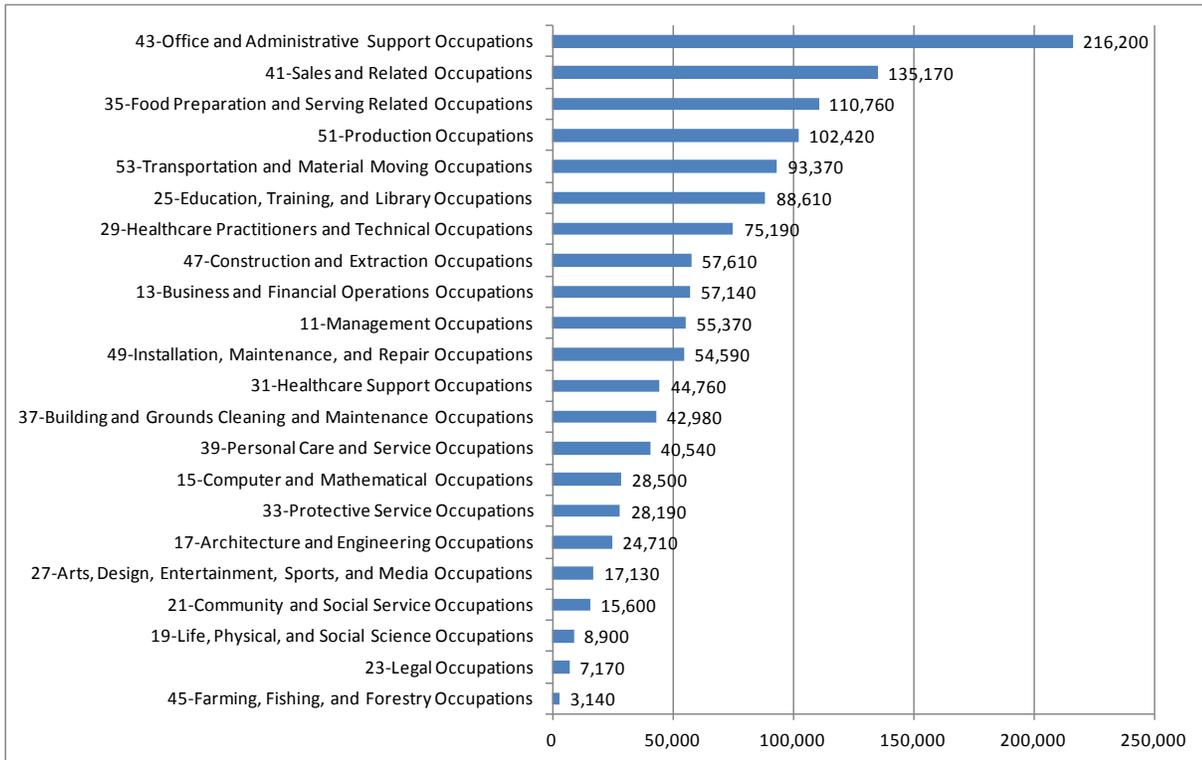


Figure 3. 2011 Mean Annual Wage by 2-digit SOC Category

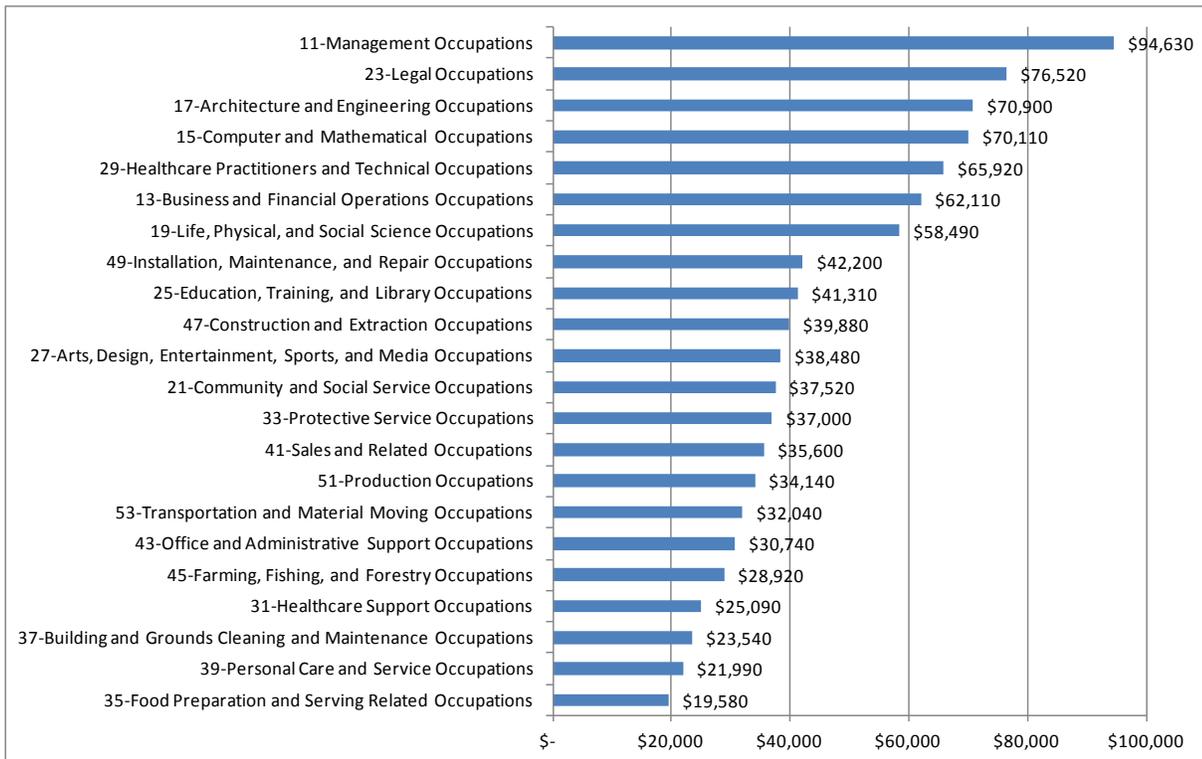
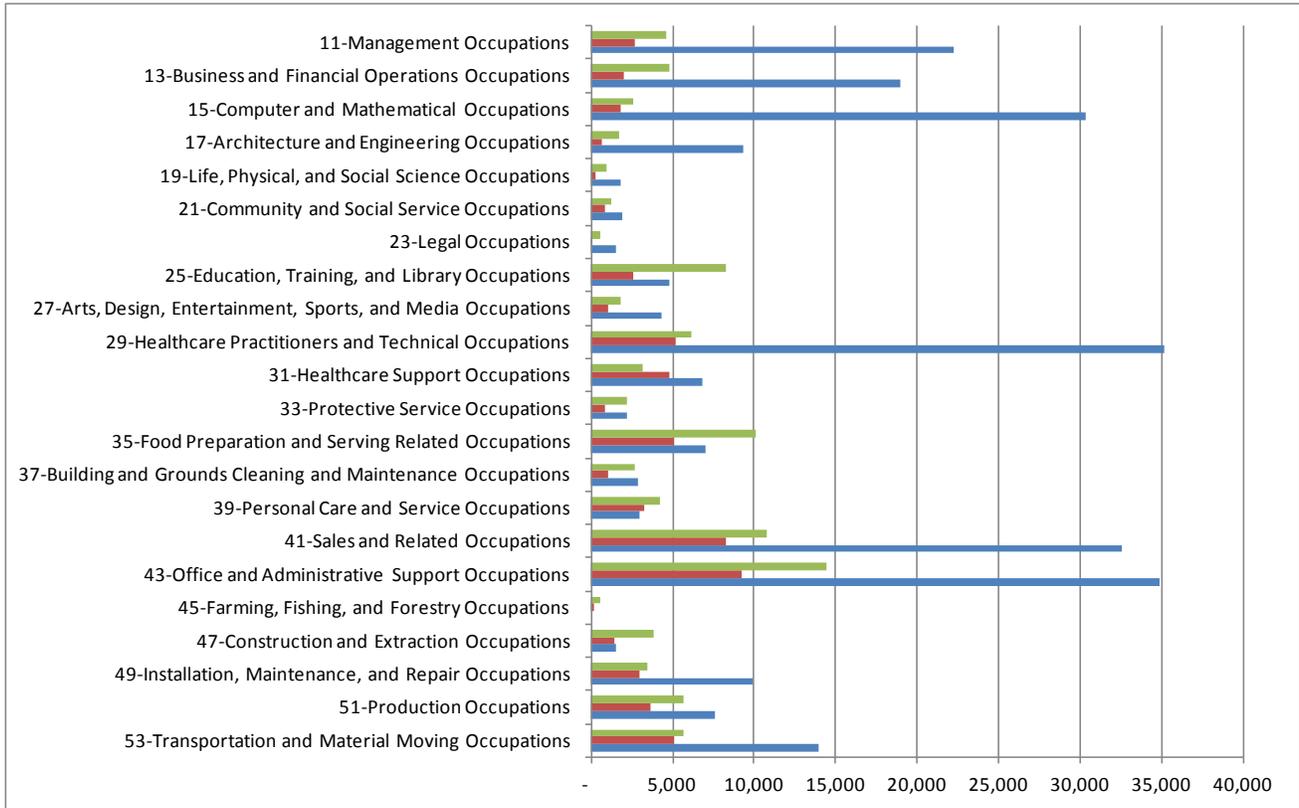


Figure 4. 2010-2011 Total Labor Demand by 2-digit SOC Category



(Note: the top bar across from each occupational category represents occupational projections, the middle bar across from each category represents job vacancies, and the bottom bar represents online job postings.)

CIP Programs and Completers with No SOC Match

The following table summarizes programs and completers with no match in the supply/demand analysis based on the CIP/SOC crosswalk. Many of these programs are described as other, general, or pre, and they are not matched to an occupational category based on the crosswalk. The 1,661 completers represent about 2.2 percent of total completers (75,921) in this study. While theoretically these completers could be matched to various occupational categories in the study, it was determined not to include them in the study because of the additional methodology and assumptions that would have to be made. For summarization and confidentiality purposes, any program with less than 10 completers was summarized in the “Other” category.

Table 3. CIP Programs and Completers with No SOC Match

6-digit CIP Code	CIP Description	2010-2011 Completers
13.1299	Teacher Education and Professional Development, Specific Levels and Methods, Other	66
15.0000	Engineering Technology, General	107
24.0199	Liberal Arts and Sciences, General Studies and Humanities, Other	609
30.9999	Multi-/Interdisciplinary Studies, Other	51
31.0301	Parks, Recreation and Leisure Facilities Management, General	36
43.9999	Homeland Security, Law Enforcement, Firefighting and Related Protective Services, Other	13
46.9999	Construction Trades, Other	13
47.9999	Mechanic and Repair Technologies/Technicians, Other	133
50.0499	Design and Applied Arts, Other	15
51.0799	Health and Medical Administrative Services, Other	63
51.1102	Pre-Medicine/Pre-Medical Studies	51
51.1104	Pre-Veterinary Studies	27
51.1105	Pre-Nursing Studies	27
51.1199	Health/Medical Preparatory Programs, Other	14
51.1599	Mental and Social Health Services and Allied Professions, Other	55
51.2699	Health Aides/Attendants/Orderlies, Other	35
51.9999	Health Professions and Related Clinical Sciences, Other	40
52.0399	Accounting and Related Services, Other	33
52.9999	Business, Management, Marketing, and Related Support Services, Other	208
-	Other	65
	Total	1661

Appendix C – Supply/Demand Alignment Analysis

The following appendix includes the complete supply/demand analysis and results across all occupations based on the CIP/SOC crosswalk. A substantial amount of data was yielded from the supply/demand analysis regarding potential mismatches between higher education and the needs of the Kansas economy. However, it must be stressed, when analyzing the results of this study, there is a less than perfect relationship between educational programs and occupations. For the Regents purposes, five major occupational groups were focused on in the results section of this study. Complete data for these five areas begin on the following pages:

Business and Financial Operations Occupations (pg 27)

Computer and Mathematical Occupations (pg 29)

Architecture and Engineering Occupations (pg 31)

Healthcare Practitioners and Technical Occupations (pg 50)

Construction and Extraction Occupations/Installation, Maintenance, and Repair Occupations/Production Occupations (pg 64)

About the data

- The data is listed by SOC Code. When available, total employment, mean annual wage, and educational requirement are provided based on May 2011 State Occupational Employment and Wage Estimates
- Blank cells within the supply/demand analysis indicate (0) values or no data was available.
- Total supply and total demand figures are provided for reference only, and were used with average and weighted figures (not included in this table) to determine the supply demand ratios.
- For summarization purposes, CIP's impacted are listed without their corresponding CIP code, and are separated by a semicolon. Certain occupations had numerous matching CIP programs, and were summarized to eliminate redundancy within the table. Some occupations have no matching CIP programs, and "No Match" is indicated in these instances.
- The average supply/demand ratio is the average of the three supply/demand ratios used to determine alignment. To determine alignment, a supply/demand ratio value between 0.7 and 2.1 was considered to be "aligned," a value below 0.7 was considered to be "potential undersupply," and a value above 2.1 was considered to be "not aligned," or potential oversupply. Where supply or demand figures weren't available, this column is labeled "undetermined." In certain cases, there may be significant outliers, either within the supply or demand data that may generate results that may not necessarily be reflective of the actual conditions within a certain occupational category (e.g. SOC 11-9013 Farmers, Ranchers, and Other Agricultural Managers, total demand is 1 occupation and total supply is 926 completers, depicting a fairly large oversupply which may or may not necessarily be accurate); further analysis would be required in these scenarios.
- To assist with interpretation of the table, the following example is provided: Within Business and Financial Occupations, 13-1161 represents the national SOC code for the occupation Market Research Analysts and Marketing Specialists. The next three columns represent the 2011 total employment (2,940), mean annual wage (\$55,370), and the typical educational requirement (Bachelor's degree) for entry into this profession. The next column represents 2010-2011 total demand (1,247), which is a summation of Kansas Long-term Occupational Projections, Kansas Job Vacancy Surveys, and Burning Glass Online Job Postings. The next two columns represent 2010-2011 total supply (808), summarizing the completers of Regents programs described in the adjoining column. The final two columns represent the average supply/demand ratio calculated for this occupation (0.39), and a ratio below 0.7 would indicate a potential undersupply. **It should be noted that total supply and demand figures were provided for reference purposes only, and the average supply/demand ratio was based on a combination of these and other weighted figures, which are not included in the table, thus further supply/demand detail would be required for the reader to calculate the average supply/demand ratios for each occupation.**

SOC Code	Occupational Title	2011 Total Employment	2011 Mean Annual Wage	Educational Requirement	2010-11 Total Demand	2010-11 Total Supply	CIP's Impacted	Average Supply / Demand Ratio	Alignment Determination
Management Occupations									
11-1011	Chief Executives	4,400	\$ 159,360	Bachelor's or higher degree, plus work experience	753	4,157	Public Administration; Business/Commerce, General; Business Administration and Management, General; Entrepreneurship/Entrepreneurial Studies; Finance, General; International Business/Trade/Commerce; Management Science;	2.54	not aligned
11-1021	General and Operations Managers	16,320	\$ 97,820	Bachelor's or higher degree, plus work experience	4,341	4,157	Parks, Recreation and Leisure Facilities Management, Other; Public Administration; Business/Commerce, General; Business Administration and Management, General; Retail Management; Entrepreneurship/Entrepreneurial Studies; Finance, General; International Business/Trade/Commerce; Management Science;	0.44	potential undersupply
11-1031	Legislators	480	\$ 53,470	Bachelor's or higher degree, plus work experience	42	162	Public Administration; Public Policy Analysis, General;	2.02	aligned
11-2011	Advertising and Promotions Managers	210	\$ 80,650	Bachelor's or higher degree, plus work experience	33	808	Public Relations, Advertising, and Applied Communication; Public Relations/Image Management; Advertising; Marketing/Marketing Management, General;	14.67	not aligned
11-2021	Marketing Managers	1,060	\$ 112,590	Bachelor's or higher degree, plus work experience	1,849	808	Consumer Merchandising/Retailing Management; Apparel and Textile Marketing Management; Pharmaceutical Marketing and Management; Marketing/Marketing Management, General; Marketing Research; International Marketing; Marketing, Other;	0.26	potential undersupply
11-2022	Sales Managers	2,580	\$ 108,410	Bachelor's or higher degree, plus work experience	4,354	3,816	Consumer Merchandising/Retailing Management; Pharmaceutical Marketing and Management; Business/Commerce, General; Business Administration and Management, General; Marketing/Marketing Management, General;	0.42	potential undersupply
11-2031	Public Relations and Fundraising Managers	410	\$ 90,680	Bachelor's or higher degree, plus work experience	245	-	Public Relations, Advertising, and Applied Communication; Public Relations/Image Management;	-	undetermined
11-3011	Administrative Services Managers	1,960	\$ 76,190	Bachelor's or higher degree, plus work experience	627	3,016	Medical/Health Management and Clinical Assistant/Specialist; Business/Commerce, General; Business Administration and Management, General; Purchasing, Procurement/Acquisitions and Contracts Management;	2.14	not aligned
11-3021	Computer and Information Systems Managers	2,270	\$ 99,570	Bachelor's or higher degree, plus work experience	705	654	Computer and Information Sciences, General; Information Technology; Information Science/Studies; Computer Science; Network and System Administration/Administrator; Computer and Information Systems Security/Information Assurance; Information Technology Project Management; Operations Management and Supervision; Management Information Systems, General; Information Resources Management; Knowledge Management;	0.57	potential undersupply
11-3031	Financial Managers	3,960	\$ 105,300	Bachelor's or higher degree, plus work experience	2,858	872	Accounting and Finance; Accounting and Business/Management; Finance, General; International Finance; Public Finance; Credit Management; Finance and Financial Management Services, Other;	0.14	potential undersupply
11-3051	Industrial Production Managers	1,470	\$ 78,230	Bachelor's or higher degree, plus work experience	2,112	3,425	Industrial Engineering; Engineering/Industrial Management; Business/Commerce, General; Business Administration and Management, General; Logistics, Materials, and Supply Chain Management; Operations Management and Supervision;	0.78	aligned
11-3061	Purchasing Managers	630	\$ 94,750	Bachelor's or higher degree, plus work experience	63	-	Purchasing, Procurement/Acquisitions and Contracts Management;	-	undetermined
11-3071	Transportation, Storage, and Distribution Managers	980	\$ 84,490	Bachelor's or higher degree, plus work experience	106	3,219	Public Administration; Aeronautics/Aviation/Aerospace Science and Technology, General; Aviation/Airway Management and Operations; Business/Commerce, General; Business Administration and Management, General; Logistics, Materials, and Supply Chain Management; Transportation/Mobility Management;	13.72	not aligned
11-3111	Compensation and Benefits Managers	150	\$ 80,840	Bachelor's or higher degree, plus work experience	15	99	Human Resources Management/Personnel Administration, General;	3.27	not aligned
11-3121	Human Resources Managers	660	\$ 95,480	Bachelor's or higher degree, plus work experience	734	99	Human Resources Management/Personnel Administration, General; Labor and Industrial Relations;	0.07	potential undersupply
11-3131	Training and Development Managers	270	\$ 88,390	Bachelor's or higher degree, plus work experience	34	99	Human Resources Management/Personnel Administration, General;	1.46	aligned

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11-9013	Farmers, Ranchers, and Other Agricultural Managers	30	\$ 95,190	-	1	926	Agricultural Business and Management, General; Agribusiness/Agricultural Business Operations; Farm/Farm and Ranch Management; Agricultural Business and Management, Other; Agricultural Production Operations, General; Animal/Livestock Husbandry and Production; Aquaculture; Crop Production; Dairy Husbandry and Production; Horse Husbandry/Equine Science and Management; Agroecology and Sustainable Agriculture; Viticulture and Enology; Agricultural Production Operations, Other; Applied Horticulture/Horticulture Operations, General; Ornamental Horticulture; Greenhouse Operations and Management; Plant Nursery Operations and Management; Animal Sciences, General; Agricultural Animal Breeding; Animal Health; Animal Nutrition; Dairy Science; Livestock Management; Poultry Science; Animal Sciences, Other; Plant Sciences, General; Agronomy and Crop Science; Horticultural Science; Plant Protection and Integrated Pest Management; Range Science and Management;	702.40	not aligned
11-9021	Construction Managers	1,630	\$ 78,870	Bachelor's degree	812	3,317	Construction Engineering Technology/Technician; Business/Commerce, General; Business Administration and Management, General; Operations Management and Supervision; Construction Management;	2.07	aligned
11-9031	Education Administrators, Preschool and Childcare Center/Program	290	\$ 49,220	Bachelor's or higher degree, plus work experience	369	408	Educational Leadership and Administration, General; Educational, Instructional, and Curriculum Supervision; Superintendency and Educational System Administration;	0.74	aligned
11-9032	Education Administrators, Elementary and Secondary School	2,160	\$ 78,400	Bachelor's or higher degree, plus work experience	436	408	Educational Leadership and Administration, General; Educational, Instructional, and Curriculum Supervision; Elementary and Middle School Administration/Principalship; Secondary School Administration/Principalship; Superintendency and Educational System Administration;	0.62	potential undersupply
11-9033	Education Administrators, Postsecondary	1,270	\$ 81,330	Bachelor's or higher degree, plus work experience	533	457	Educational Leadership and Administration, General; Educational, Instructional, and Curriculum Supervision; Higher Education/Higher Education Administration; Community College Education;	0.61	potential undersupply
11-9039	Education Administrators, All Other	140	\$ 94,160	Bachelor's or higher degree, plus work experience	16	481	Educational Leadership and Administration, General; Administration of Special Education; Adult and Continuing Education Administration; Educational, Instructional, and Curriculum Supervision; Higher Education/Higher Education Administration; Urban Education and Leadership; Superintendency and Educational System Administration; Educational Administration and Supervision, Other;	22.32	not aligned
11-9041	Architectural and Engineering Managers	1,610	\$ 120,480	Bachelor's or higher degree, plus work experience	594	3,013	Architecture; City/Urban, Community and Regional Planning; Environmental Design/Architecture; Interior Architecture; Landscape Architecture; Architectural and Building Sciences/Technology; Engineering, General; Aerospace, Aeronautical and Astronautical/Space Engineering; Agricultural Engineering; Architectural Engineering; Bioengineering and Biomedical Engineering; Ceramic Sciences and Engineering; Chemical Engineering; Chemical and Biomolecular Engineering; Chemical Engineering, Other; Civil Engineering, General; Geotechnical and Geoenvironmental Engineering; Structural Engineering; Transportation and Highway Engineering; Water Resources Engineering; Civil Engineering, Other; Computer Engineering, General; Computer Hardware Engineering; Computer Software Engineering; Computer Engineering, Other; Electrical and Electronics Engineering; Laser and Optical Engineering; Telecommunications Engineering; Electrical, Electronics and Communications Engineering, Other; Engineering Mechanics; Engineering Physics/Applied Physics; Engineering Science; Environmental/Environmental Health Engineering; Materials Engineering; Mechanical Engineering; Metallurgical Engineering; Mining and Mineral Engineering; Naval Architecture and Marine Engineering; Nuclear Engineering; Ocean Engineering; Petroleum Engineering; Systems Engineering; Textile Sciences and Engineering; Polymer/Plastics Engineering; Construction Engineering; Forest Engineering; Industrial Engineering; Manufacturing Engineering; Surveying Engineering; Geological/Geophysical Engineering; Paper Science and Engineering; Electromechanical Engineering; Mechatronics, Robotics, and Automation Engineering; Biochemical Engineering; Engineering Chemistry; Biological/Biosystems Engineering; Engineering, Other; Engineering/Industrial Management; Packaging Science; Engineering Design; Materials Science;	3.47	not aligned

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11-9051	Food Service Managers	1,740	\$ 43,760	Work experience in a related occupation	1,963	196	Restaurant, Culinary, and Catering Management/Manager; Culinary Science/Culinology; Wine Steward/Sommelier; Foodservice Systems Administration/Management; Hospitality Administration/Management, General; Hotel/Motel Administration/Management; Restaurant/Food Services Management; Hotel, Motel, and Restaurant Management;	0.09	potential undersupply
11-9061	Funeral Service Managers	580	\$ 39,920	Associate degree	24	51	Funeral Service and Mortuary Science, General; Funeral Direction/Service; Funeral Service and Mortuary Science, Other;	1.65	aligned
11-9071	Gaming Managers	-	\$ -	-	-	-	Casino Management;	-	undetermined
11-9081	Lodging Managers	230	\$ 46,640	Work experience in a related occupation	131	143	Hospitality Administration/Management, General; Hotel/Motel Administration/Management; Restaurant/Food Services Management; Resort Management; Hotel, Motel, and Restaurant Management; Hospitality and Recreation Marketing Operations;	1.09	aligned
11-9111	Medical and Health Services Managers	2,900	\$ 82,680	Bachelor's or higher degree, plus work experience	2,813	232	Health Policy Analysis; Health/Health Care Administration/Management; Hospital and Health Care Facilities Administration/Management; Health Unit Manager/Ward Supervisor; Health Information/Medical Records Administration/Administrator; Long Term Care Administration/Management; Clinical Research Coordinator; Public Health, General; Community Health and Preventive Medicine; Health Services Administration; Nursing Administration; Nursing Practice;	0.10	potential undersupply
11-9121	Natural Sciences Managers	160	\$ 109,520	Bachelor's or higher degree, plus work experience	178	2,323	Engineering Physics/Applied Physics; Operations Research; Biology/Biological Sciences, General; Biochemistry; Biophysics; Molecular Biology; Radiation Biology/Radiobiology; Biochemistry and Molecular Biology; Biochemistry, Biophysics and Molecular Biology, Other; Botany/Plant Biology; Plant Pathology/Phytopathology; Plant Physiology; Botany/Plant Biology, Other; Cell/Cellular Biology and Histology; Anatomy; Cell/Cellular Biology and Anatomical Sciences, Other; Microbiology, General; Medical Microbiology and Bacteriology; Virology; Parasitology; Immunology; Microbiology and Immunology; Microbiological Sciences and Immunology, Other; Zoology/Animal Biology; Entomology; Animal Physiology; Zoology/Animal Biology, Other; Molecular Genetics; Animal Genetics; Plant Genetics; Genome Sciences/Genomics; Genetics, Other; Pathology/Experimental Pathology; Aerospace Physiology and Medicine; Pharmacology; Toxicology; Biometry/Biometrics; Biostatistics; Computational Biology; Biomathematics, Bioinformatics, and Computational Biology, Other; Biotechnology; Ecology; Marine Biology and Biological Oceanography; Evolutionary Biology; Ecology and Evolutionary Biology; Ecology, Evolution, Systematics and Population Biology, Other; Molecular Medicine; Neuroscience; Neuroanatomy; Neurobiology and Anatomy;	8.47	not aligned
11-9131	Postmasters and Mail Superintendents	540	\$ 53,540	Work experience in a related occupation	24	162	Public Administration;	3.54	not aligned
11-9141	Property, Real Estate, and Community Association Managers	1,690	\$ 49,740	Bachelor's degree	749	-	Real Estate Development; Real Estate;	-	undetermined
11-9151	Social and Community Service Managers	830	\$ 53,080	Bachelor's degree	122	4,154	Human Services, General; Community Organization and Advocacy; Public Administration; Social Work; Youth Services/Administration; Social Work, Other; Business/Commerce, General; Business Administration and Management, General; Non-Profit/Public/Organizational Management;	15.50	not aligned
11-9161	Emergency Management Directors	190	\$ 43,260	Work experience in a related occupation	17	-	Critical Incident Response/Special Police Operations; Protective Services Operations; Homeland Security; Crisis/Emergency/Disaster Management; Critical Infrastructure Protection; Terrorism and Counterterrorism Operations;	-	undetermined
11-9199	Managers, All Other	2,100	\$ 83,490	Work experience in a related occupation	1,909	8,358	Natural Resource Recreation and Tourism; Digital Communication and Media/Multimedia; Information Technology Project Management; Library and Information Science; Archives/Archival Administration; Golf Course Operation and Grounds Management; Parks, Recreation and Leisure Facilities Management, Other; Psychology, General; Cognitive Psychology and Psycholinguistics; Comparative Psychology; Developmental and Child Psychology; Experimental Psychology; Personality Psychology; Physiological Psychology/Psychobiology; Social Psychology; Psychometrics and Quantitative Psychology; Psychopharmacology; Research and Experimental Psychology, Other; Clinical Psychology; Community Psychology; Counseling Psychology; Industrial and Organizational Psychology; School Psychology; Educational Psychology; Clinical Child Psychology; Environmental Psychology; Geropsychology; Health/Medical Psychology; Family Psychology; Forensic Psychology; Applied Psychology; Applied Behavior Analysis; Clinical, Counseling and Applied	2.63	not aligned

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Business and Financial Operations Occupations									
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	-	\$ -	Bachelor's or higher degree, plus work experience	5	-	Sports Communication; Arts, Entertainment, and Media Management, General; Fine and Studio Arts Management; Arts, Entertainment, and Media Management, Other; Purchasing, Procurement/Acquisitions and Contracts Management;	-	undetermined
13-1021	Buyers and Purchasing Agents, Farm Products	250	\$ 72,020	Long-term on-the-job training	22	4	Agricultural/Farm Supplies Retailing and Wholesaling;	0.14	potential undersupply
13-1022	Wholesale and Retail Buyers, Except Farm Products	1,270	\$ 48,890	Long-term on-the-job training	123	20	Wine Steward/Sommelier; Apparel and Textile Marketing Management; Sales, Distribution, and Marketing Operations, General; Merchandising and Buying Operations; General Merchandising, Sales, and Related Marketing Operations, Other; Fashion Merchandising; Apparel and Accessories Marketing Operations;	0.15	potential undersupply
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	3,420	\$ 58,950	Long-term on-the-job training	1,332	6	Sales, Distribution, and Marketing Operations, General; General Merchandising, Sales, and Related Marketing Operations, Other;	0.00	potential undersupply
13-1031	Claims Adjusters, Examiners, and Investigators	2,730	\$ 58,450	Long-term on-the-job training	601	-	Health/Medical Claims Examiner; Insurance;	-	undetermined
13-1032	Insurance Appraisers, Auto Damage	220	\$ 54,020	Work experience in a related occupation	20	270	Autobody/Collision and Repair Technology/Technician; Insurance;	9.00	not aligned
13-1041	Compliance Officers	2,080	\$ 56,330	Work experience in a related occupation	565	-	NO MATCH;	-	undetermined
13-1051	Cost Estimators	2,130	\$ 58,320	Work experience in a related occupation	733	3,772	Materials Engineering; Mechanical Engineering; Construction Engineering; Manufacturing Engineering; Construction Engineering Technology/Technician; Business/Commerce, General; Business Administration and Management, General;	2.50	not aligned
13-1071	Human Resources Specialists	3,710	\$ 55,430	Bachelor's degree	2,996	99	Human Resources Management/Personnel Administration, General; Organizational Behavior Studies; Human Resources Management and Services, Other;	0.02	potential undersupply
13-1074	Farm Labor Contractors	-	\$ -	Bachelor's degree	-	-	NO MATCH;	-	undetermined
13-1075	Labor Relations Specialists	-	\$ -	-	168	104	Dispute Resolution; Human Resources Management/Personnel Administration, General; Labor and Industrial Relations; Labor Studies;	0.32	potential undersupply
13-1081	Logisticians	1,560	\$ 70,030	Bachelor's degree	1,121	1	Operations Management and Supervision;	0.00	potential undersupply
13-1111	Management Analysts	3,760	\$ 78,830	Bachelor's or higher degree, plus work experience	2,005	3,008	Business/Commerce, General; Business Administration and Management, General; Organizational Leadership;	0.67	potential undersupply
13-1121	Meeting, Convention, and Event Planners	650	\$ 41,130	Bachelor's degree	535	-	Facilities Planning and Management; Meeting and Event Planning;	-	undetermined
13-1131	Fundraisers	-	\$ -	-	32	-	NO MATCH;	-	undetermined
13-1141	Compensation, Benefits, and Job Analysis Specialists	680	\$ 54,320	-	150	99	Human Resources Management/Personnel Administration, General;	0.33	potential undersupply
13-1151	Training and Development Specialists	2,190	\$ 51,310	-	1,182	152	Human Resources Management/Personnel Administration, General; Human Resources Development;	0.12	potential undersupply
13-1161	Market Research Analysts and Marketing Specialists	2,940	\$ 55,370	Bachelor's degree	1,247	808	Consumer Merchandising/Retailing Management; Applied Economics; Marketing/Marketing Management, General; Marketing Research; International Marketing;	0.39	potential undersupply
13-1199	Business Operations Specialists, All Other	8,720	\$ 65,410	Bachelor's degree	1,285	-	NO MATCH;	-	undetermined
13-2011	Accountants and Auditors	10,190	\$ 61,030	Bachelor's degree	6,215	1,521	Accounting and Computer Science; Financial Forensics and Fraud Investigation; Accounting; Auditing; Accounting and Finance; Accounting and Business/Management; Taxation;	0.14	potential undersupply
13-2021	Appraisers and Assessors of Real Estate	920	\$ 54,900	Associate degree	60	-	Real Estate Development; Real Estate;	-	undetermined
13-2031	Budget Analysts	600	\$ 63,990	Bachelor's degree	38	2,377	Accounting; Accounting and Finance; Finance, General; Public Finance;	32.73	not aligned
13-2041	Credit Analysts	390	\$ 60,470	Bachelor's degree	570	2,377	Accounting; Finance, General; Credit Management;	2.18	not aligned
13-2051	Financial Analysts	1,010	\$ 79,700	Bachelor's degree	1,605	872	Financial Mathematics; Accounting and Finance; Accounting and Business/Management; Finance, General; International Finance; Investments and Securities; Public Finance;	0.26	potential undersupply
13-2052	Personal Financial Advisors	1,500	\$ 94,200	Bachelor's degree	1,227	864	Finance, General; Financial Planning and Services;	0.33	potential undersupply

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13-2053	Insurance Underwriters	960	\$ 59,960	Bachelor's degree	474	-	Actuarial Science; Insurance;	-	undetermined
13-2061	Financial Examiners	260	\$ 76,650	Bachelor's degree	21	1,513	Financial Forensics and Fraud Investigation; Suspension and Debarment Investigation; Accounting; Auditing; Taxation;	40.03	not aligned
13-2071	Credit Counselors	180	\$ 35,770	Bachelor's degree	21	1	Banking and Financial Support Services; Financial Planning and Services; Credit Management;	0.03	potential undersupply
13-2072	Loan Officers	3,580	\$ 65,260	Moderate-term on-the-job training	1,282	864	Finance, General; Credit Management;	0.31	potential undersupply
13-2081	Tax Examiners and Collectors, and Revenue Agents	450	\$ 46,250	Bachelor's degree	91	1,513	Accounting; Taxation;	9.24	not aligned
13-2082	Tax Preparers	370	\$ 36,730	Moderate-term on-the-job training	36	106	Accounting Technology/Technician and Bookkeeping; Taxation;	1.77	aligned
13-2099	Financial Specialists, All Other	400	\$ 60,650	Bachelor's degree	23	864	Financial Mathematics; Finance, General;	17.26	not aligned

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Computer and Mathematical Occupations									
15-1111	Computer and Information Research Scientists	80	\$ 81,540	Doctoral degree	10	514	Computer and Information Sciences, General; Artificial Intelligence; Information Technology; Informatics; Computer and Information Sciences, Other; Information Science/Studies; Computer Science; Modeling, Virtual Environments and Simulation; Bioinformatics; Medical Informatics;	27.19	not aligned
15-1121	Computer Systems Analysts	3,990	\$ 76,370	-	4,301	661	Computer and Information Sciences, General; Information Technology; Computer Systems Analysis/Analyst; Computer Systems Networking and Telecommunications;	0.09	potential undersupply
15-1122	Information Security Analysts	-	\$ -	-	262	327	Information Technology; Computer Science; Computer Systems Networking and Telecommunications; Network and System Administration/Administrator; System, Networking, and LAN/WAN Management/Manager; Computer and Information Systems Security/Information Assurance; Information Technology Project Management; Cyber/Computer Forensics and Counterterrorism;	0.82	aligned
15-1131	Computer Programmers	3,770	\$ 66,590	-	7,154	197	Computer Programming/Programmer, General; Computer Programming, Specific Applications; Computer Programming, Vendor/Product Certification; Computer Programming, Other; Computer Science; Computer Graphics; Modeling, Virtual Environments and Simulation; Computer Software Technology/Technician; Medical Office Computer Specialist/Assistant; Management Information Systems, General;	0.02	potential undersupply
15-1132	Software Developers, Applications	2,800	\$ 88,840	-	5,305	225	Artificial Intelligence; Information Technology; Informatics; Computer Programming/Programmer, General; Computer Programming, Specific Applications; Computer Science; Modeling, Virtual Environments and Simulation; Computer Engineering, General; Computer Software Engineering; Computer Software Technology/Technician; Bioinformatics; Medical Informatics;	0.02	potential undersupply
15-1133	Software Developers, Systems Software	2,950	\$ 98,830	-	1,800	368	Artificial Intelligence; Information Technology; Informatics; Computer Programming/Programmer, General; Computer Programming, Specific Applications; Information Science/Studies; Computer Science; Computer Engineering, General; Computer Software Engineering; Computer Software Technology/Technician;	0.12	potential undersupply
15-1134	Web Developers	-	\$ -	-	1,760	111	Computer Programming/Programmer, General; Computer Science; Web Page, Digital/Multimedia and Information Resources Design; Web/Multimedia Management and Webmaster;	0.04	potential undersupply
15-1141	Database Administrators	940	\$ 73,180	-	1,929	358	Computer and Information Sciences, General; Data Modeling/Warehousing and Database Administration; Computer and Information Systems Security/Information Assurance;	0.10	potential undersupply
15-1142	Network and Computer Systems Administrators	4,310	\$ 64,440	-	2,750	365	Computer and Information Sciences, General; Network and System Administration/Administrator; Computer and Information Systems Security/Information Assurance;	0.07	potential undersupply
15-1143	Computer Network Architects	2,090	\$ 69,880	-	430	797	Computer and Information Sciences, General; Information Technology; Computer Systems Analysis/Analyst; Computer Systems Networking and Telecommunications; Network and System Administration/Administrator; Computer and Information Systems Security/Information Assurance; Computer Engineering, General; Computer Engineering, Other;	1.06	aligned
15-1151	Computer User Support Specialists	5,840	\$ 44,000	-	3,065	-	Agricultural Business Technology; Computer Support Specialist; Medical Office Computer Specialist/Assistant;	-	undetermined
15-1152	Computer Network Support Specialists	-	\$ -	-	767	414	Computer Programming/Programmer, General; Computer Systems Analysis/Analyst; Computer Science; Computer Systems Networking and Telecommunications; Network and System Administration/Administrator; System, Networking, and LAN/WAN Management/Manager; Computer and Information Systems Security/Information Assurance; Computer Support Specialist;	0.35	potential undersupply
15-1199	Computer Occupations, All Other	870	\$ 71,860	-	5,007	504	Computer and Information Sciences, General; Data Processing and Data Processing Technology/Technician; Information Science/Studies; Computer Science; Information Technology Project Management; Bioinformatics; Computational Biology; Mathematics and Computer Science; Accounting and Computer Science; Computational Science; Human Computer Interaction; Cyber/Computer Forensics and Counterterrorism; Medical Informatics;	0.06	potential undersupply

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15-2011	Actuaries	330	\$ 122,760	Bachelor's or higher degree, plus work experience	79	57	Applied Mathematics, General; Computational and Applied Mathematics; Statistics, General; Mathematical Statistics and Probability; Mathematics and Statistics; Statistics, Other; Actuarial Science;	0.43	potential undersupply
15-2021	Mathematicians	-	\$ -	-	-	321	Mathematics, General; Algebra and Number Theory; Analysis and Functional Analysis; Geometry/Geometric Analysis; Topology and Foundations; Mathematics, Other; Applied Mathematics, General; Computational Mathematics; Computational and Applied Mathematics; Financial Mathematics; Mathematical Biology; Applied Mathematics, Other; Mathematical Statistics and Probability; Mathematics and Statistics; Mathematics and Statistics, Other; Logic;	-	undetermined
15-2031	Operations Research Analysts	420	\$ 83,610	Master's degree	36	7	Operations Research; Management Science;	0.19	potential undersupply
15-2041	Statisticians	110	\$ 74,700	Master's degree	32	373	Biostatistics; Mathematics, General; Applied Mathematics, General; Computational and Applied Mathematics; Statistics, General; Mathematical Statistics and Probability; Mathematics and Statistics; Statistics, Other; Research Methodology and Quantitative Methods; Business Statistics;	6.45	not aligned
15-2091	Mathematical Technicians	-	\$ -	-	-	5	Applied Mathematics, General;	-	undetermined
15-2099	Mathematical Science Occupations, All Other	-	\$ -	-	-	321	Computational Biology; Mathematics, General; Applied Mathematics, General; Computational Mathematics; Computational and Applied Mathematics; Financial Mathematics; Mathematical Biology; Applied Mathematics, Other; Mathematics and Statistics, Other; Computational Science;	-	undetermined

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Architecture and Engineering Occupations									
17-1011	Architects, Except Landscape and Naval	790	\$ 68,440	Bachelor's degree	111	423	Architecture; Environmental Design/Architecture; Architectural History and Criticism, General;	3.06	not aligned
17-1012	Landscape Architects	110	\$ 65,450	-	1	43	Environmental Design/Architecture; Landscape Architecture;	24.51	not aligned
17-1021	Cartographers and Photogrammetrists	270	\$ 45,070	-	42	6	Surveying Technology/Surveying; Geographic Information Science and Cartography;	0.11	potential undersupply
17-1022	Surveyors	550	\$ 48,970	Bachelor's degree	47	2	Surveying Technology/Surveying;	0.03	potential undersupply
17-2011	Aerospace Engineers	3,100	\$ 91,940	Bachelor's degree	232	1,239	Aerospace, Aeronautical and Astronautical/Space Engineering; Electrical and Electronics Engineering; Mechanical Engineering;	3.34	not aligned
17-2021	Agricultural Engineers	110	\$ 74,280	Bachelor's degree	8	50	Agricultural Engineering;	4.86	not aligned
17-2031	Biomedical Engineers	-	\$ -	-	-	7	Bioengineering and Biomedical Engineering; Biological/Biosystems Engineering;	-	undetermined
17-2041	Chemical Engineers	160	\$ 88,640	Bachelor's degree	526	157	Chemical Engineering; Chemical and Biomolecular Engineering; Chemical Engineering, Other; Paper Science and Engineering; Biochemical Engineering; Engineering Chemistry;	0.23	potential undersupply
17-2051	Civil Engineers	1,750	\$ 72,660	Bachelor's degree	1,368	292	Civil Engineering, General; Geotechnical and Geoenvironmental Engineering; Structural Engineering; Transportation and Highway Engineering; Water Resources Engineering; Civil Engineering, Other; Construction Engineering;	0.17	potential undersupply
17-2061	Computer Hardware Engineers	120	\$ 79,380	Bachelor's degree	10	107	Computer Engineering, General; Computer Hardware Engineering;	5.94	not aligned
17-2071	Electrical Engineers	2,220	\$ 80,770	Bachelor's degree	1,560	495	Electrical and Electronics Engineering; Electrical, Electronics and Communications Engineering, Other;	0.19	potential undersupply
17-2072	Electronics Engineers, Except Computer	1,520	\$ 80,830	Bachelor's degree	464	495	Electrical and Electronics Engineering; Telecommunications Engineering; Electrical, Electronics and Communications Engineering, Other;	0.64	potential undersupply
17-2081	Environmental Engineers	320	\$ 81,440	Bachelor's degree	43	7	Geotechnical and Geoenvironmental Engineering; Environmental/Environmental Health Engineering;	0.11	potential undersupply
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	200	\$ 76,600	Bachelor's degree	21	7	Environmental/Environmental Health Engineering;	0.23	potential undersupply
17-2112	Industrial Engineers	1,780	\$ 75,200	Bachelor's degree	997	197	Industrial Engineering; Manufacturing Engineering; Packaging Science;	0.13	potential undersupply
17-2121	Marine Engineers and Naval Architects	-	\$ -	-	1	-	Naval Architecture and Marine Engineering;	-	undetermined
17-2131	Materials Engineers	170	\$ 95,460	Bachelor's degree	13	-	Ceramic Sciences and Engineering; Materials Engineering; Metallurgical Engineering; Textile Sciences and Engineering; Polymer/Plastics Engineering;	-	undetermined
17-2141	Mechanical Engineers	2,080	\$ 73,480	Bachelor's degree	3,986	566	Mechanical Engineering; Electromechanical Engineering;	0.09	potential undersupply
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	40	\$ 71,260	-	-	-	Geotechnical and Geoenvironmental Engineering; Mining and Mineral Engineering; Geological/Geophysical Engineering;	-	undetermined
17-2161	Nuclear Engineers	210	\$ 107,150	-	20	11	Nuclear Engineering;	0.44	potential undersupply
17-2171	Petroleum Engineers	160	\$ 129,300	Bachelor's degree	20	25	Geotechnical and Geoenvironmental Engineering; Petroleum Engineering;	0.98	aligned
17-2199	Engineers, All Other	-	\$ 84,180	Bachelor's degree	673	229	Engineering, General; Architectural Engineering; Chemical and Biomolecular Engineering; Geotechnical and Geoenvironmental Engineering; Laser and Optical Engineering; Telecommunications Engineering; Engineering Mechanics; Engineering Physics/Applied Physics; Engineering Science; Ocean Engineering; Systems Engineering; Construction Engineering; Forest Engineering; Manufacturing Engineering; Surveying Engineering; Geological/Geophysical Engineering; Paper Science and Engineering; Electromechanical Engineering; Mechatronics, Robotics, and Automation Engineering; Biochemical Engineering; Engineering Chemistry; Biological/Biosystems Engineering; Engineering, Other; Engineering Design; Nanotechnology; Assistive/Augmentative Technology and Rehabilitation Engineering;	0.23	potential undersupply
17-3011	Architectural and Civil Drafters	760	\$ 44,650	Postsecondary vocational training	54	137	Architectural Technology/Technician; Architectural and Building Sciences/Technology; Architectural Sciences and Technology, Other; Drafting and Design Technology/Technician, General; CAD/CADD Drafting and/or Design Technology/Technician; Architectural Drafting and Architectural CAD/CADD; Civil Drafting and Civil Engineering CAD/CADD;	1.80	aligned

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17-3012	Electrical and Electronics Drafters	430	\$ 50,350	Postsecondary vocational training	24	131	Drafting and Design Technology/Technician, General; CAD/CADD Drafting and/or Design Technology/Technician; Electrical/Electronics Drafting and Electrical/Electronics CAD/CADD;	3.64	not aligned
17-3013	Mechanical Drafters	930	\$ 49,280	Postsecondary vocational training	502	143	Drafting and Design Technology/Technician, General; CAD/CADD Drafting and/or Design Technology/Technician; Mechanical Drafting and Mechanical Drafting CAD/CADD;	0.21	potential undersupply
17-3019	Drafters, All Other	-	\$ 49,830	-	16	131	Drafting and Design Technology/Technician, General; CAD/CADD Drafting and/or Design Technology/Technician; Drafting/Design Engineering Technologies/Technicians, Other;	5.30	not aligned
17-3021	Aerospace Engineering and Operations Technicians	280	\$ 60,040	-	1	4	Aeronautical/Aerospace Engineering Technology/Technician;	5.07	not aligned
17-3022	Civil Engineering Technicians	1,370	\$ 49,880	Associate degree	131	231	Civil Engineering Technology/Technician; Construction Engineering Technology/Technician; Building Construction Technology;	1.64	aligned
17-3023	Electrical and Electronics Engineering Technicians	1,320	\$ 59,740	Associate degree	596	52	Electrical, Electronic and Communications Engineering Technology/Technician; Telecommunications Technology/Technician; Integrated Circuit Design; Electrical and Electronic Engineering Technologies/Technicians, Other; Semiconductor Manufacturing Technology; Computer Engineering Technology/Technician; Computer Technology/Computer Systems Technology;	0.15	potential undersupply
17-3024	Electro-Mechanical Technicians	-	\$ -	-	-	8	Electromechanical Technology/Electromechanical Engineering Technology; Instrumentation Technology/Technician; Robotics Technology/Technician; Automation Engineer Technology/Technician; Electromechanical and Instrumentation and Maintenance Technologies/Technicians, Other;	-	undetermined
17-3025	Environmental Engineering Technicians	160	\$ 37,690	Associate degree	23	-	Environmental Engineering Technology/Environmental Technology; Hazardous Materials Information Systems Technology/Technician;	-	undetermined
17-3026	Industrial Engineering Technicians	880	\$ 55,940	Associate degree	31	490	Industrial Technology/Technician; Manufacturing Engineering Technology/Technician; Industrial Production Technologies/Technicians, Other; Engineering/Industrial Management; Packaging Science; Chemical Process Technology;	21.30	not aligned
17-3027	Mechanical Engineering Technicians	380	\$ 52,310	Associate degree	79	62	Mechanical Engineering/Mechanical Technology/Technician; Mechanical Engineering Related Technologies/Technicians, Other;	1.30	aligned
17-3029	Engineering Technicians, Except Drafters, All Other	550	\$ 60,570	Associate degree	24	61	Architectural Engineering Technology/Technician; Laser and Optical Technology/Technician; Biomedical Technology/Technician; Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology/Technician; Energy Management and Systems Technology/Technician; Solar Energy Technology/Technician; Environmental Control Technologies/Technicians, Other; Plastics and Polymer Engineering Technology/Technician; Metallurgical Technology/Technician; Welding Engineering Technology/Technician; Chemical Engineering Technology/Technician; Mining Technology/Technician; Hydraulics and Fluid Power Technology/Technician; Computer Hardware Technology/Technician; Packaging Science;	3.51	not aligned
17-3031	Surveying and Mapping Technicians	440	\$ 37,550	Moderate-term on-the-job training	48	2	Surveying Technology/Surveying;	0.03	potential undersupply

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Life, Physical, and Social Science Occupations									
19-1011	Animal Scientists	40	\$ 80,830	Doctoral degree	12	455	Agriculture, General; Animal Sciences, General; Agricultural Animal Breeding; Animal Health; Animal Nutrition; Dairy Science; Poultry Science; Animal Sciences, Other; Range Science and Management;	25.28	not aligned
19-1012	Food Scientists and Technologists	190	\$ 64,250	Bachelor's degree	43	217	Agriculture, General; Viticulture and Enology; International Agriculture; Food Science; Food Technology and Processing; Culinary Science/Culinology;	4.25	not aligned
19-1013	Soil and Plant Scientists	330	\$ 55,900	Bachelor's degree	48	284	Agriculture, General; Agroecology and Sustainable Agriculture; Viticulture and Enology; Plant Sciences, General; Agronomy and Crop Science; Horticultural Science; Agricultural and Horticultural Plant Breeding; Plant Protection and Integrated Pest Management; Range Science and Management; Plant Sciences, Other; Soil Science and Agronomy, General; Soil Chemistry and Physics; Soil Microbiology; Soil Sciences, Other;	4.15	not aligned
19-1021	Biochemists and Biophysicists	-	\$ -	-	-	136	Biochemistry; Biophysics; Molecular Biochemistry; Molecular Biophysics; Biochemistry and Molecular Biology; Cell/Cellular Biology and Anatomical Sciences, Other;	-	undetermined
19-1022	Microbiologists	150	\$ 53,770	Doctoral degree	33	90	Soil Microbiology; Structural Biology; Cell/Cellular Biology and Anatomical Sciences, Other; Microbiology, General; Microbiology and Immunology;	2.10	not aligned
19-1023	Zoologists and Wildlife Biologists	-	\$ -	-	-	45	Wildlife, Fish and Wildlands Science and Management; Zoology/Animal Biology; Entomology; Animal Physiology; Animal Behavior and Ethology; Wildlife Biology; Zoology/Animal Biology, Other; Ecology; Marine Sciences;	-	undetermined
19-1029	Biological Scientists, All Other	180	\$ 67,500	Doctoral degree	12	1,229	Biology/Biological Sciences, General; Molecular Biology; Photobiology; Radiation Biology/Radiobiology; Biochemistry and Molecular Biology; Botany/Plant Biology; Plant Pathology/Phytopathology; Plant Physiology; Plant Molecular Biology; Botany/Plant Biology, Other; Cell/Cellular Biology and Histology; Anatomy; Developmental Biology and Embryology; Cell/Cellular and Molecular Biology; Cell Biology and Anatomy; Cell/Cellular Biology and Anatomical Sciences, Other; Medical Microbiology and Bacteriology; Virology; Parasitology; Mycology; Immunology; Microbiology and Immunology; Entomology; Animal Physiology; Genetics, General; Molecular Genetics; Microbial and Eukaryotic Genetics; Animal Genetics; Plant Genetics; Genome Sciences/Genomics; Genetics, Other; Pathology/Experimental Pathology; Pharmacology; Toxicology; Biometry/Biometrics; Biostatistics; Computational Biology; Biomathematics, Bioinformatics, and Computational Biology, Other; Biotechnology; Ecology; Marine Biology and Biological Oceanography; Evolutionary Biology; Aquatic Biology/Limnology; Environmental Biology; Population Biology; Conservation Biology; Systematic Biology/Biological Systematics; Ecology and Evolutionary Biology; Ecology, Evolution, Systematics and Population Biology, Other; Neuroscience; Neuroanatomy;	65.29	not aligned
19-1031	Conservation Scientists	190	\$ 64,170	Bachelor's degree	5	3	Agroecology and Sustainable Agriculture; Range Science and Management; Natural Resources/Conservation, General; Natural Resources Management and Policy; Water, Wetlands, and Marine Resources Management; Land Use Planning and Management/Development; Forestry, General; Forest Sciences and Biology; Forest Management/Forest Resources Management; Wildlife, Fish and Wildlands Science and Management;	0.47	potential undersupply
19-1032	Foresters	-	\$ -	-	-	2	Natural Resources/Conservation, General; Natural Resources Management and Policy; Forestry, General; Forest Sciences and Biology; Forest Management/Forest Resources Management; Urban Forestry; Wood Science and Wood Products/Pulp and Paper Technology; Forest Resources Production and Management; Forestry, Other;	-	undetermined
19-1041	Epidemiologists	-	\$ -	-	4	-	Cell/Cellular Biology and Histology; Epidemiology; Medical Scientist; Environmental Health;	-	undetermined

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19-1042	Medical Scientists, Except Epidemiologists	700	\$ 71,400	Doctoral degree	586	299	Biomedical Sciences, General; Biochemistry; Biophysics; Molecular Biology; Cell/Cellular Biology and Histology; Anatomy; Medical Microbiology and Bacteriology; Immunology; Human/Medical Genetics; Physiology, General; Molecular Physiology; Cell Physiology; Endocrinology; Reproductive Biology; Cardiovascular Science; Exercise Physiology; Vision Science/Physiological Optics; Pathology/Experimental Pathology; Oncology and Cancer Biology; Aerospace Physiology and Medicine; Physiology, Pathology, and Related Sciences, Other; Pharmacology; Molecular Pharmacology; Neuropharmacology; Toxicology; Molecular Toxicology; Environmental Toxicology; Pharmacology and Toxicology; Pharmacology and Toxicology, Other; Biostatistics; Epidemiology; Molecular Medicine; Neuroanatomy; Neurobiology and Anatomy; Neurobiology and Behavior; Neurobiology and Neurosciences, Other; Gerontology; Medical Scientist; Pharmaceutical Sciences;	0.42	potential undersupply
19-1099	Life Scientists, All Other	110	\$ 59,140	Bachelor's degree	4	1,203	Biology/Biological Sciences, General; Ecology; Ecology, Evolution, Systematics and Population Biology, Other; Biological and Biomedical Sciences, Other; Behavioral Sciences; Natural Sciences; Nutrition Sciences; Rehabilitation Science;	187.80	not aligned
19-2011	Astronomers	-	\$ -	-	-	5	Astronomy; Astrophysics; Planetary Astronomy and Science; Astronomy and Astrophysics, Other;	-	undetermined
19-2012	Physicists	40	\$ 143,160	-	-	98	Engineering Physics/Applied Physics; Astrophysics; Physics, General; Atomic/Molecular Physics; Elementary Particle Physics; Plasma and High-Temperature Physics; Nuclear Physics; Optics/Optical Sciences; Condensed Matter and Materials Physics; Acoustics; Theoretical and Mathematical Physics; Physics, Other; Health/Medical Physics;	-	undetermined
19-2021	Atmospheric and Space Scientists	110	\$ 74,270	Bachelor's degree	9	20	Atmospheric Sciences and Meteorology, General; Atmospheric Chemistry and Climatology; Atmospheric Physics and Dynamics; Meteorology; Atmospheric Sciences and Meteorology, Other;	1.73	aligned
19-2031	Chemists	600	\$ 62,380	Bachelor's degree	651	280	Chemistry, General; Analytical Chemistry; Inorganic Chemistry; Organic Chemistry; Physical Chemistry; Polymer Chemistry; Chemical Physics; Environmental Chemistry; Forensic Chemistry; Theoretical Chemistry; Chemistry, Other; Materials Chemistry;	0.29	potential undersupply
19-2032	Materials Scientists	30	\$ 81,170	Bachelor's degree	4	-	Materials Science; Materials Chemistry; Materials Sciences, Other;	-	undetermined
19-2041	Environmental Scientists and Specialists, Including Health	880	\$ 58,300	Master's degree	122	139	Environmental Studies; Environmental Science; Marine Sciences; Environmental Chemistry; Environmental Health;	1.14	aligned
19-2042	Geoscientists, Except Hydrologists and Geographers	220	\$ 70,390	Master's degree	24	126	Marine Sciences; Geology/Earth Science, General; Geochemistry; Geophysics and Seismology; Paleontology; Geochemistry and Petrology; Oceanography, Chemical and Physical; Geological and Earth Sciences/Geosciences, Other;	3.50	not aligned
19-2043	Hydrologists	-	\$ -	-	-	126	Geology/Earth Science, General; Hydrology and Water Resources Science; Oceanography, Chemical and Physical;	-	undetermined
19-2099	Physical Scientists, All Other	140	\$ 90,450	Bachelor's degree	8	98	Natural Sciences; Marine Sciences; Physical Sciences, Other;	9.53	not aligned
19-3011	Economists	40	\$ 70,820	-	-	620	Agricultural Economics; Financial Mathematics; Economics, General; Applied Economics; Econometrics and Quantitative Economics; Development Economics and International Development; International Economics; Economics, Other; Political Economy; Business/Managerial Economics;	-	undetermined
19-3022	Survey Researchers	200	\$ 36,690	Bachelor's degree	902	489	Statistics, General; Research Methodology and Quantitative Methods; Economics, General; Applied Economics; Business/Managerial Economics; Business Statistics; Marketing Research;	0.36	potential undersupply
19-3031	Clinical, Counseling, and School Psychologists	1,290	\$ 55,960	Doctoral degree	164	1,569	Psychology, General; Developmental and Child Psychology; Clinical Psychology; Counseling Psychology; School Psychology; Clinical Child Psychology; Geropsychology; Health/Medical Psychology; Applied Behavior Analysis; Psychoanalysis and Psychotherapy;	5.96	not aligned
19-3032	Industrial-Organizational Psychologists	-	\$ -	-	-	1,385	Psychology, General; Industrial and Organizational Psychology;	-	undetermined

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19-3039	Psychologists, All Other	90	\$ 90,890	Master's degree	11	1,613	Behavioral Sciences; Psychology, General; Cognitive Psychology and Psycholinguistics; Comparative Psychology; Experimental Psychology; Personality Psychology; Physiological Psychology/Psychobiology; Social Psychology; Psychometrics and Quantitative Psychology; Psychopharmacology; Research and Experimental Psychology, Other; Community Psychology; Educational Psychology; Environmental Psychology; Family Psychology; Forensic Psychology; Applied Psychology; Applied Behavior Analysis; Clinical, Counseling and Applied Psychology, Other; Psychology, Other;	89.68	not aligned
19-3041	Sociologists	-	\$ -	-	-	583	Research Methodology and Quantitative Methods; Criminology; Demography and Population Studies; Sociology; Urban Studies/Affairs; Sociology and Anthropology; Rural Sociology;	-	undetermined
19-3051	Urban and Regional Planners	370	\$ 59,000	Master's degree	19	60	City/Urban, Community and Regional Planning; Real Estate Development; Urban Studies/Affairs;	2.07	aligned
19-3091	Anthropologists and Archeologists	-	\$ -	-	-	395	Human Biology; Anthropology; Physical and Biological Anthropology; Medical Anthropology; Cultural Anthropology; Anthropology, Other; Archeology; Sociology and Anthropology;	-	undetermined
19-3092	Geographers	-	\$ -	-	-	185	Geography; Geography, Other;	-	undetermined
19-3093	Historians	40	\$ 60,430	Master's degree	5	732	Architectural History and Criticism, General; Historic Preservation and Conservation; Cultural Resource Management and Policy Analysis; Historic Preservation and Conservation, Other; Medieval and Renaissance Studies; Holocaust and Related Studies; Ancient Studies/Civilization; Classical, Ancient Mediterranean and Near Eastern Studies and Archaeology; Maritime Studies; History, General; American History (United States); European History; History and Philosophy of Science and Technology; Public/Applied History; Asian History; Canadian History; Military History; History, Other;	104.04	not aligned
19-3094	Political Scientists	-	\$ -	-	-	743	International/Global Studies; Public Policy Analysis, General; International Policy Analysis; International Relations and Affairs; National Security Policy Studies; International Relations and National Security Studies, Other; Political Science and Government, General; American Government and Politics (United States); Canadian Government and Politics; Political Economy; Political Science and Government, Other;	-	undetermined
19-3099	Social Scientists and Related Workers, All Other	510	\$ 84,730	Master's degree	24	732	Learning Sciences; Linguistic, Comparative, and Related Language Studies and Services, Other; Gerontology; Behavioral Sciences; Education Policy Analysis; Health Policy Analysis; Social Sciences, General; Research Methodology and Quantitative Methods; Demography and Population Studies; Social Sciences, Other;	20.60	not aligned
19-4011	Agricultural and Food Science Technicians	370	\$ 37,170	Associate degree	68	-	Food Technology and Processing;	-	undetermined
19-4021	Biological Technicians	370	\$ 38,140	Bachelor's degree	56	16	Biology Technician/Biotechnology Laboratory Technician;	0.48	potential undersupply
19-4031	Chemical Technicians	550	\$ 39,540	Associate degree	31	-	Chemical Technology/Technician; Chemical Process Technology;	-	undetermined
19-4041	Geological and Petroleum Technicians	60	\$ 45,030	Associate degree	8	-	Petroleum Technology/Technician; Mining and Petroleum Technologies/Technicians, Other;	-	undetermined
19-4051	Nuclear Technicians	-	\$ -	-	3	53	Nuclear Engineering Technology/Technician; Industrial Radiologic Technology/Technician; Nuclear/Nuclear Power Technology/Technician; Nuclear and Industrial Radiologic Technologies/Technicians, Other; Radiation Protection/Health Physics Technician;	32.48	not aligned
19-4061	Social Science Research Assistants	-	\$ -	-	-	430	Social Sciences, General;	-	undetermined
19-4091	Environmental Science and Protection Technicians, Including Health	190	\$ 45,980	Associate degree	40	-	Physical Science Technologies/Technicians, Other; Science Technologies/Technicians, Other;	-	undetermined
19-4092	Forensic Science Technicians	90	\$ 51,630	Associate degree	1	9	Forensic Chemistry; Forensic Science and Technology;	6.75	not aligned
19-4093	Forest and Conservation Technicians	140	\$ 41,180	Associate degree	12	-	Forest Technology/Technician; Forestry, Other;	-	undetermined
19-4099	Life, Physical, and Social Science Technicians, All Other	420	\$ 42,770	Associate degree	56	-	Science Technologies/Technicians, General; Chemical Process Technology; Physical Science Technologies/Technicians, Other; Science Technologies/Technicians, Other;	-	undetermined

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Community and Social Service Occupations									
21-1011	Substance Abuse and Behavioral Disorder Counselors	550	\$ 37,260	Bachelor's degree	78	85	Substance Abuse/Addiction Counseling; Clinical/Medical Social Work; Clinical Pastoral Counseling/Patient Counseling;	1.10	aligned
21-1012	Educational, Guidance, School, and Vocational Counselors	2,130	\$ 50,410	Master's degree	609	359	Counselor Education/School Counseling and Guidance Services; College Student Counseling and Personnel Services; Student Counseling and Personnel Services, Other;	0.98	aligned
21-1013	Marriage and Family Therapists	100	\$ 40,980	-	50	978	Social Work; Marriage and Family Therapy/Counseling; Clinical Pastoral Counseling/Patient Counseling;	9.42	not aligned
21-1014	Mental Health Counselors	470	\$ 42,410	Master's degree	565	107	Substance Abuse/Addiction Counseling; Clinical/Medical Social Work; Clinical Pastoral Counseling/Patient Counseling; Mental Health Counseling/Counselor;	0.22	potential undersupply
21-1015	Rehabilitation Counselors	800	\$ 30,410	Master's degree	136	31	Vocational Rehabilitation Counseling/Counselor; Assistive/Augmentative Technology and Rehabilitation Engineering; Rehabilitation Science;	0.22	potential undersupply
21-1019	Counselors, All Other	1,200	\$ 37,330	-	5	978	Social Work; Clinical Pastoral Counseling/Patient Counseling;	86.67	not aligned
21-1021	Child, Family, and School Social Workers	1,290	\$ 38,740	Bachelor's degree	406	981	Juvenile Corrections; Social Work; Youth Services/Administration; Social Work, Other;	1.16	aligned
21-1022	Healthcare Social Workers	1,030	\$ 42,050	Bachelor's degree	132	981	Social Work; Social Work, Other; Clinical/Medical Social Work;	3.58	not aligned
21-1023	Mental Health and Substance Abuse Social Workers	880	\$ 37,430	Master's degree	86	981	Social Work; Social Work, Other; Clinical/Medical Social Work;	5.46	not aligned
21-1029	Social Workers, All Other	600	\$ 48,570	Bachelor's degree	569	981	Social Work; Social Work, Other;	0.83	aligned
21-1091	Health Educators	340	\$ 43,490	Bachelor's degree	63	168	Health Communication; Health and Wellness, General; Dental Public Health and Education; Community Health Services/Liaison/Counseling; Public Health, General; Public Health Education and Promotion; Maternal and Child Health; International Public Health/International Health; Behavioral Aspects of Health;	2.10	not aligned
21-1092	Probation Officers and Correctional Treatment Specialists	930	\$ 39,040	Bachelor's degree	120	978	Social Work;	3.91	not aligned
21-1093	Social and Human Service Assistants	3,600	\$ 27,330	Moderate-term on-the-job training	912	-	Developmental Services Worker; Human Services, General;	-	undetermined
21-1094	Community Health Workers	-	\$ -	-	5	168	Health Communication; Health and Wellness, General; Community Health Services/Liaison/Counseling; Public Health, General; Public Health Education and Promotion; Community Health and Preventive Medicine; Maternal and Child Health; Behavioral Aspects of Health;	28.30	not aligned
21-1099	Community and Social Service Specialists, All Other	1,390	\$ 32,520	Bachelor's degree	173	197	Developmental Services Worker; Behavioral Sciences; Human Services, General; Community Organization and Advocacy;	0.76	aligned
21-2011	Clergy	240	\$ 45,440	-	1	-	Theology/Theological Studies; Divinity/Ministry; Pre-Theology/Pre-Ministerial Studies; Rabbinical Studies; Theological and Ministerial Studies, Other; Pastoral Studies/Counseling; Youth Ministry; Urban Ministry; Clinical Pastoral Counseling/Patient Counseling;	-	undetermined
21-2021	Directors, Religious Activities and Education	-	\$ -	-	-	-	Bible/Biblical Studies; Missions/Missionary Studies and Missiology; Religious Education; Youth Ministry; Women's Ministry; Lay Ministry;	-	undetermined
21-2099	Religious Workers, All Other	-	\$ -	-	-	-	Theological and Ministerial Studies, Other; Pastoral Studies/Counseling; Women's Ministry; Lay Ministry;	-	undetermined

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Legal Occupations									
23-1011	Lawyers	3,720	\$ 99,510	First professional degree	1,305	619	Law; Advanced Legal Research/Studies, General; Programs for Foreign Lawyers; American/US Law/Legal Studies/Jurisprudence; Canadian Law/Legal Studies/Jurisprudence; Banking, Corporate, Finance, and Securities Law; Comparative Law; Energy, Environment, and Natural Resources Law; Health Law; International Law and Legal Studies; International Business, Trade, and Tax Law; Tax Law/Taxation; Intellectual Property Law; Legal Research and Advanced Professional Studies, Other;	0.27	potential undersupply
23-1012	Judicial Law Clerks	40	\$ -	-	-	613	Law;	-	undetermined
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	40	\$ 110,840	-	1	613	Law;	340.56	not aligned
23-1022	Arbitrators, Mediators, and Conciliators	30	\$ 44,120	Bachelor's or higher degree, plus work experience	10	618	Law; Dispute Resolution;	34.56	not aligned
23-1023	Judges, Magistrate Judges, and Magistrates	230	\$ -	Bachelor's or higher degree, plus work experience	22	613	Law;	15.48	not aligned
23-2011	Paralegals and Legal Assistants	1,800	\$ 42,240	Associate degree	776	114	Legal Assistant/Paralegal;	0.11	potential undersupply
23-2091	Court Reporters	230	\$ 56,440	Postsecondary vocational training	26	8	Court Reporting/Court Reporter;	0.51	potential undersupply
23-2093	Title Examiners, Abstractors, and Searchers	650	\$ 43,880	Moderate-term on-the-job training	28	114	Legal Assistant/Paralegal;	3.17	not aligned
23-2099	Legal Support Workers, All Other	430	\$ 47,960	Moderate-term on-the-job training	18	114	Legal Assistant/Paralegal;	4.93	not aligned

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Education, Training, and Library Occupations									
25-1011	Business Teachers, Postsecondary	860	\$ 70,270	Doctoral degree	88	6,534	Business Teacher Education; Sales and Marketing Operations/Marketing and Distribution Teacher Education; Business/Commerce, General; Business Administration and Management, General; Purchasing, Procurement/Acquisitions and Contracts Management; Logistics, Materials, and Supply Chain Management; Operations Management and Supervision; Research and Development Management; Project Management; Retail Management; Organizational Leadership; Accounting; Business/Corporate Communications; Entrepreneurship/Entrepreneurial Studies; Franchising and Franchise Operations; Finance, General; Financial Planning and Services; International Finance; Investments and Securities; Public Finance; Hotel, Motel, and Restaurant Management; Human Resources Management/Personnel Administration, General; Labor and Industrial Relations; Organizational Behavior Studies; International Business/Trade/Commerce; Management Science; Business Statistics; Actuarial Science; Marketing/Marketing Management, General; Marketing Research; International Marketing; Insurance; Telecommunications Management;	37.35	not aligned
25-1021	Computer Science Teachers, Postsecondary	340	\$ 68,170	Doctoral degree	30	601	Computer and Information Sciences, General; Computer Programming/Programmer, General; Information Science/Studies; Computer Systems Analysis/Analyst; Computer Science; Computer Teacher Education;	11.03	not aligned
25-1022	Mathematical Science Teachers, Postsecondary	590	\$ 57,380	Doctoral degree	60	396	Mathematics Teacher Education; Mathematics, General; Algebra and Number Theory; Analysis and Functional Analysis; Geometry/Geometric Analysis; Topology and Foundations; Mathematics, Other; Applied Mathematics, General; Computational and Applied Mathematics; Financial Mathematics; Mathematical Biology; Applied Mathematics, Other; Statistics, General; Mathematical Statistics and Probability; Mathematics and Statistics; Statistics, Other; Mathematics and Statistics, Other; Logic; Business Statistics;	3.76	not aligned
25-1031	Architecture Teachers, Postsecondary	150	\$ 80,110	Doctoral degree	14	795	Architecture; City/Urban, Community and Regional Planning; Environmental Design/Architecture; Interior Architecture; Landscape Architecture; Architectural and Building Sciences/Technology; Architectural Sciences and Technology, Other; Architectural Engineering; Interior Design;	44.09	not aligned
25-1032	Engineering Teachers, Postsecondary	370	\$ 92,110	Doctoral degree	38	2,315	Engineering, General; Aerospace, Aeronautical and Astronautical/Space Engineering; Agricultural Engineering; Architectural Engineering; Bioengineering and Biomedical Engineering; Ceramic Sciences and Engineering; Chemical Engineering; Chemical and Biomolecular Engineering; Chemical Engineering, Other; Civil Engineering, General; Geotechnical and Geoenvironmental Engineering; Structural Engineering; Transportation and Highway Engineering; Water Resources Engineering; Civil Engineering, Other; Computer Engineering, General; Computer Hardware Engineering; Computer Software Engineering; Computer Engineering, Other; Electrical and Electronics Engineering; Laser and Optical Engineering; Telecommunications Engineering; Electrical, Electronics and Communications Engineering, Other; Engineering Mechanics; Engineering Physics/Applied Physics; Engineering Science; Environmental/Environmental Health Engineering; Materials Engineering; Mechanical Engineering; Metallurgical Engineering; Mining and Mineral Engineering; Naval Architecture and Marine Engineering; Nuclear Engineering; Ocean Engineering; Petroleum Engineering; Systems Engineering; Textile Sciences and Engineering; Polymer/Plastics Engineering; Construction Engineering; Forest Engineering; Industrial Engineering; Manufacturing	40.37	not aligned

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25-1041	Agricultural Sciences Teachers, Postsecondary	390	\$ 79,720	Doctoral degree	44	1,457	Agriculture, General; Agricultural Business and Management, General; Agribusiness/Agricultural Business Operations; Agricultural Economics; Farm/Farm and Ranch Management; Agricultural/Farm Supplies Retailing and Wholesaling; Agricultural Business and Management, Other; Agricultural Mechanization, General; Agricultural Power Machinery Operation; Agricultural Mechanization, Other; Agricultural Production Operations, General; Animal/Livestock Husbandry and Production; Aquaculture; Crop Production; Agroecology and Sustainable Agriculture; Viticulture and Enology; Agricultural Production Operations, Other; Agricultural and Food Products Processing; Animal Training; Equestrian/Equine Studies; Applied Horticulture/Horticulture Operations, General; Ornamental Horticulture; Greenhouse Operations and Management; Landscaping and Groundskeeping; Plant Nursery Operations and Management; Turf and Turfgrass Management; International Agriculture; Animal Sciences, General; Agricultural Animal Breeding; Animal Health; Animal Nutrition; Dairy Science; Livestock Management; Poultry Science; Animal Sciences, Other; Food Science; Plant Sciences, General; Agronomy and Crop Science; Horticultural Science; Agricultural and Horticultural Plant Breeding; Plant Protection and Integrated Pest Management; Range	26.64	not aligned
25-1042	Biological Science Teachers, Postsecondary	660	\$ 68,260	Doctoral degree	65	1,422	Science Teacher Education/General Science Teacher Education; Biology Teacher Education; Biology/Biological Sciences, General; Biochemistry; Biophysics; Molecular Biology; Radiation Biology/Radiobiology; Biochemistry and Molecular Biology; Biochemistry, Biophysics and Molecular Biology, Other; Botany/Plant Biology; Plant Pathology/Phytopathology; Plant Physiology; Botany/Plant Biology, Other; Cell/Cellular Biology and Histology; Anatomy; Cell/Cellular Biology and Anatomical Sciences, Other; Microbiology, General; Virology; Parasitology; Immunology; Microbiology and Immunology; Microbiological Sciences and Immunology, Other; Zoology/Animal Biology; Entomology; Animal Physiology; Zoology/Animal Biology, Other; Molecular Genetics; Plant Genetics; Genome Sciences/Genomics; Genetics, Other; Pathology/Experimental Pathology; Aerospace Physiology and Medicine; Pharmacology; Toxicology; Biometry/Biometrics; Computational Biology; Biomathematics, Bioinformatics, and Computational Biology, Other; Biotechnology; Ecology; Marine Biology and Biological Oceanography; Evolutionary Biology; Ecology and Evolutionary Biology; Ecology, Evolution, Systematics and Population Biology, Other; Molecular Medicine; Neuroscience; Neuroanatomy; Neurobiology and Anatomy; Neurobiology and Behavior; Neurobiology and Neurosciences, Other; Biological and Biomedical Sciences, Other; Nutrition Sciences; Human	13.78	not aligned
25-1043	Forestry and Conservation Science Teachers, Postsecondary	-	\$ -	-	-	4	Agroecology and Sustainable Agriculture; Range Science and Management; Natural Resources/Conservation, General; Natural Resources Management and Policy; Water, Wetlands, and Marine Resources Management; Land Use Planning and Management/Development; Natural Resources Management and Policy, Other; Forestry, General; Forest Sciences and Biology; Forest Management/Forest Resources Management; Urban Forestry; Wood Science and Wood Products/Pulp and Paper Technology; Forest Resources Production and Management; Forestry, Other; Wildlife, Fish and Wildlands Science and Management; Natural Resources and Conservation, Other; Science Teacher Education/General Science Teacher Education;	-	undetermined
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	50	\$ 72,330	-	-	152	Science Teacher Education/General Science Teacher Education; Earth Science Teacher Education; Astronomy; Astrophysics; Planetary Astronomy and Science; Atmospheric Sciences and Meteorology, General; Atmospheric Chemistry and Climatology; Atmospheric Physics and Dynamics; Meteorology; Atmospheric Sciences and Meteorology, Other; Geology/Earth Science, General; Geochemistry; Geophysics and Seismology; Paleontology; Hydrology and Water Resources Science; Geochemistry and Petrology; Oceanography, Chemical and Physical; Geological and Earth Sciences/Geosciences, Other;	-	undetermined
25-1052	Chemistry Teachers, Postsecondary	180	\$ 64,580	Doctoral degree	18	286	Science Teacher Education/General Science Teacher Education; Chemistry Teacher Education; Chemistry, General; Analytical Chemistry; Inorganic Chemistry; Organic Chemistry; Physical Chemistry; Polymer Chemistry; Chemical Physics; Environmental Chemistry; Forensic Chemistry; Theoretical Chemistry; Chemistry, Other; Geochemistry; Materials Chemistry;	10.48	not aligned
25-1053	Environmental Science Teachers, Postsecondary	30	\$ 57,600	-	-	140	Environmental Studies; Environmental Science; Science Teacher Education/General Science Teacher Education; Environmental Chemistry;	-	undetermined

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25-1054	Physics Teachers, Postsecondary	150	\$ 70,740	Doctoral degree	11	91	Science Teacher Education/General Science Teacher Education; Physics Teacher Education; Astronomy and Astrophysics, Other; Chemical Physics; Physics, General; Atomic/Molecular Physics; Elementary Particle Physics; Plasma and High-Temperature Physics; Nuclear Physics; Optics/Optical Sciences; Condensed Matter and Materials Physics; Acoustics; Theoretical and Mathematical Physics; Physics, Other;	5.50	not aligned
25-1061	Anthropology and Archeology Teachers, Postsecondary	-	\$ -	-	1	246	Social Science Teacher Education; Anthropology; Physical and Biological Anthropology; Medical Anthropology; Cultural Anthropology; Anthropology, Other; Archeology; Sociology and Anthropology;	188.96	not aligned
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	120	\$ 69,920	Doctoral degree	6	248	African Studies; American/United States Studies/Civilization; Asian Studies/Civilization; East Asian Studies; Russian, Central European, East European and Eurasian Studies; European Studies/Civilization; Latin American Studies; Near and Middle Eastern Studies; Pacific Area/Pacific Rim Studies; Russian Studies; Scandinavian Studies; South Asian Studies; Southeast Asian Studies; Western European Studies; Canadian Studies; Balkans Studies; Baltic Studies; Slavic Studies; Caribbean Studies; Ural-Altai and Central Asian Studies; Commonwealth Studies; Regional Studies (US, Canadian, Foreign); Chinese Studies; French Studies; German Studies; Italian Studies; Japanese Studies; Korean Studies; Polish Studies; Spanish and Iberian Studies; Tibetan Studies; Ukraine Studies; Irish Studies; Latin American and Caribbean Studies; Area Studies, Other; Ethnic Studies; African-American/Black Studies; American Indian/Native American Studies; Hispanic-American, Puerto Rican, and Mexican-American/Chicano Studies; Asian-American Studies; Women's Studies; Gay/Lesbian Studies; Folklore Studies; Disability Studies; Deaf Studies; Ethnic, Cultural Minority, Gender, and Group Studies, Other; Social Studies Teacher Education; Intercultural/Multicultural and Diversity	68.89	not aligned
25-1063	Economics Teachers, Postsecondary	240	\$ 79,380	Doctoral degree	16	445	Social Science Teacher Education; Economics, General; Applied Economics; Econometrics and Quantitative Economics; Development Economics and International Development; International Economics; Economics, Other; Political Economy; Business/Managerial Economics;	18.17	not aligned
25-1064	Geography Teachers, Postsecondary	60	\$ 68,240	Doctoral degree	4	189	Geography Teacher Education; Geography; Geographic Information Science and Cartography; Geography, Other;	36.75	not aligned
25-1065	Political Science Teachers, Postsecondary	130	\$ 62,100	Doctoral degree	10	629	Social Science Teacher Education; Public Policy Analysis, General; Education Policy Analysis; International Policy Analysis; International Relations and Affairs; National Security Policy Studies; International Relations and National Security Studies, Other; Political Science and Government, General; American Government and Politics (United States); Political Economy; Political Science and Government, Other;	48.69	not aligned
25-1066	Psychology Teachers, Postsecondary	400	\$ 70,010	Doctoral degree	44	1,590	Social Science Teacher Education; Psychology, General; Cognitive Psychology and Psycholinguistics; Comparative Psychology; Developmental and Child Psychology; Experimental Psychology; Personality Psychology; Physiological Psychology/Psychobiology; Social Psychology; Psychometrics and Quantitative Psychology; Research and Experimental Psychology, Other; Clinical Psychology; Community Psychology; Counseling Psychology; Industrial and Organizational Psychology; School Psychology; Educational Psychology; Applied Psychology; Applied Behavior Analysis; Clinical, Counseling and Applied Psychology, Other; Psychology, Other; Marriage and Family Therapy/Counseling;	22.46	not aligned
25-1067	Sociology Teachers, Postsecondary	260	\$ 63,730	Doctoral degree	34	591	Social Science Teacher Education; Sociology; Sociology and Anthropology; Rural Sociology;	13.39	not aligned

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25-1069	Social Sciences Teachers, Postsecondary, All Other	120	\$ 61,930	Doctoral degree	12	655	City/Urban, Community and Regional Planning; Real Estate Development; Learning Sciences; Social Science Teacher Education; Human Biology; Social Sciences, General; Research Methodology and Quantitative Methods; Urban Studies/Affairs; Rural Sociology;	33.88	not aligned
25-1071	Health Specialties Teachers, Postsecondary	670	\$ 77,050	Doctoral degree	60	2,823	Health Occupations Teacher Education; Physiology, Pathology, and Related Sciences, Other; Pharmacology and Toxicology, Other; Biostatistics; Epidemiology; Health Policy Analysis; Chiropractic; Communication Sciences and Disorders, General; Audiology/Audiologist; Speech-Language Pathology/Pathologist; Audiology/Audiologist and Speech-Language Pathology/Pathologist; Dentistry; Dental Clinical Sciences, General; Dental Assisting/Assistant; Dental Hygiene/Hygienist; Dental Laboratory Technology/Technician; Clinical/Medical Laboratory Assistant; Occupational Therapist Assistant; Pharmacy Technician/Assistant; Veterinary/Animal Health Technology/Technician and Veterinary Assistant; Cardiovascular Technology/Technologist; Electrocardiograph Technology/Technician; Electroneurodiagnostic/Electroencephalographic Technology/Technologist; Emergency Medical Technology/Technician (EMT Paramedic); Nuclear Medical Technology/Technologist; Perfusion Technology/Perfusionist; Medical Radiologic Technology/Science - Radiation Therapist; Respiratory Care Therapy/Therapist; Surgical Technology/Technologist; Diagnostic Medical Sonography/Sonographer and Ultrasound Technician; Physician Assistant; Blood Bank Technology Specialist; Cytotechnology/Cytotechnologist; Hematology Technology/Technician;	43.88	not aligned
25-1072	Nursing Instructors and Teachers, Postsecondary	590	\$ 57,130	Doctoral degree	109	3,731	Registered Nursing/Registered Nurse; Adult Health Nurse/Nursing; Nurse Anesthetist; Family Practice Nurse/Nursing; Maternal/Child Health and Neonatal Nurse/Nursing; Nurse Midwife/Nursing Midwifery; Nursing Science; Pediatric Nurse/Nursing; Psychiatric/Mental Health Nurse/Nursing; Public Health/Community Nurse/Nursing; Perioperative/Operating Room and Surgical Nurse/Nursing; Clinical Nurse Specialist; Emergency Room/Trauma Nursing; Nursing Education; Palliative Care Nursing; Geriatric Nurse/Nursing; Women's Health Nurse/Nursing; Registered Nursing, Nursing Administration, Nursing Research and Clinical Nursing, Other;	34.17	not aligned
25-1081	Education Teachers, Postsecondary	560	\$ 61,830	Doctoral degree	70	1,440	Education, General; Learning Sciences; Agricultural Teacher Education; Art Teacher Education; Business Teacher Education; Driver and Safety Teacher Education; English/Language Arts Teacher Education; Foreign Language Teacher Education; Health Teacher Education; Family and Consumer Sciences/Home Economics Teacher Education; Technology Teacher Education/Industrial Arts Teacher Education; Sales and Marketing Operations/Marketing and Distribution Teacher Education; Mathematics Teacher Education; Music Teacher Education; Physical Education Teaching and Coaching; Reading Teacher Education; Science Teacher Education/General Science Teacher Education; Social Science Teacher Education; Social Studies Teacher Education; Technical Teacher Education; Trade and Industrial Teacher Education; Computer Teacher Education; Biology Teacher Education; Chemistry Teacher Education; Drama and Dance Teacher Education; French Language Teacher Education; German Language Teacher Education; History Teacher Education; Physics Teacher Education; Spanish Language Teacher Education; Speech Teacher Education; Geography Teacher Education; Earth Science Teacher Education; Education Policy Analysis;	16.51	not aligned
25-1082	Library Science Teachers, Postsecondary	-	\$ -	-	1	262	Library and Information Science; Children and Youth Library Services;	175.67	not aligned
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	140	\$ 49,880	Doctoral degree	8	744	Corrections; Criminal Justice/Law Enforcement Administration; Criminal Justice/Safety Studies; Forensic Science and Technology; Criminal Justice/Police Science; Security and Loss Prevention Services; Juvenile Corrections; Criminalistics and Criminal Science; Corrections Administration; Law Enforcement Investigation and Interviewing; Law Enforcement Record-Keeping and Evidence Management; Cyber/Computer Forensics and Counterterrorism; Financial Forensics and Fraud Investigation; Law Enforcement Intelligence Analysis; Critical Incident Response/Special Police Operations; Protective Services Operations; Suspension and Debarment Investigation; Maritime Law Enforcement; Cultural/Archaeological Resources Protection; Corrections and Criminal Justice, Other; Terrorism and Counterterrorism Operations;	68.98	not aligned
25-1112	Law Teachers, Postsecondary	120	\$ 106,170	Doctoral degree	4	613	Legal Studies, General; Law; Intellectual Property Law;	85.14	not aligned
25-1113	Social Work Teachers, Postsecondary	120	\$ 63,690	Doctoral degree	7	981	Social Work; Social Work, Other; Clinical/Medical Social Work;	67.51	not aligned

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25-1121	Art, Drama, and Music Teachers, Postsecondary	820	\$ 50,490	Doctoral degree	192	1,552	Art Teacher Education; Music Teacher Education; Drama and Dance Teacher Education; Visual and Performing Arts, General; Digital Arts; Crafts/Craft Design, Folk Art and Artisanry; Dance, General; Ballet; Dance, Other; Design and Visual Communications, General; Industrial and Product Design; Commercial Photography; Fashion/Apparel Design; Graphic Design; Drama and Dramatics/Theatre Arts, General; Technical Theatre/Theatre Design and Technology; Playwriting and Screenwriting; Theatre Literature, History and Criticism; Directing and Theatrical Production; Musical Theatre; Costume Design; Dramatic/Theatre Arts and Stagecraft, Other; Film/Cinema/Video Studies; Cinematography and Film/Video Production; Photography; Documentary Production; Film/Video and Photographic Arts, Other; Art/Art Studies, General; Fine/Studio Arts, General; Art History, Criticism and Conservation; Intermedia/Multimedia; Painting; Sculpture; Printmaking; Ceramic Arts and Ceramics; Fiber, Textile and Weaving Arts; Metal and Jewelry Arts; Fine Arts and Art Studies, Other; Music History, Literature, and Theory; Music Performance, General; Music Theory and Composition; Musicology and Ethnomusicology; Conducting; Keyboard Instruments; Voice and Opera; Jazz/Jazz Studies; Stringed Instruments; Music Pedagogy; Music Technology; Brass	5.70	not aligned
25-1122	Communications Teachers, Postsecondary	390	\$ 47,330	Doctoral degree	72	2,043	Communication, General; Speech Communication and Rhetoric; Mass Communication/Media Studies; Journalism; Broadcast Journalism; Journalism, Other; Radio and Television; Digital Communication and Media/Multimedia; Public Relations, Advertising, and Applied Communication; Public Relations/Image Management; Advertising; Political Communication; Health Communication; Sports Communication; International and Intercultural Communication; Technical and Scientific Communication; Communication, Journalism, and Related Programs, Other; Documentary Production;	17.12	not aligned
25-1123	English Language and Literature Teachers, Postsecondary	720	\$ 54,710	Doctoral degree	65	846	English/Language Arts Teacher Education; Comparative Literature; English Language and Literature, General; Writing, General; Creative Writing; Professional, Technical, Business, and Scientific Writing; Rhetoric and Composition; Rhetoric and Composition/Writing Studies, Other; General Literature; American Literature (United States); American Literature (Canadian); English Literature (British and Commonwealth); Children's and Adolescent Literature; Literature, Other; English Language and Literature/Letters, Other;	12.66	not aligned
25-1124	Foreign Language and Literature Teachers, Postsecondary	220	\$ 54,040	Doctoral degree	38	567	Foreign Language Teacher Education; French Language Teacher Education; German Language Teacher Education; Spanish Language Teacher Education; Latin Teacher Education; Foreign Languages and Literatures, General; Linguistics; Language Interpretation and Translation; Applied Linguistics; African Languages, Literatures, and Linguistics; East Asian Languages, Literatures, and Linguistics, General; Chinese Language and Literature; Japanese Language and Literature; Korean Language and Literature; Tibetan Language and Literature; East Asian Languages, Literatures, and Linguistics, Other; Slavic Languages, Literatures, and Linguistics, General; Baltic Languages, Literatures, and Linguistics; Russian Language and Literature; Albanian Language and Literature; Bulgarian Language and Literature; Czech Language and Literature; Polish Language and Literature; Bosnian, Serbian, and Croatian Languages and Literatures; Slovak Language and Literature; Ukrainian Language and Literature; Slavic, Baltic, and Albanian Languages, Literatures, and Linguistics, Other; Germanic Languages, Literatures, and Linguistics, General; German Language and Literature; Scandinavian Languages,	12.37	not aligned
25-1125	History Teachers, Postsecondary	230	\$ 52,600	Doctoral degree	19	700	History Teacher Education; History, General; American History (United States); European History; History and Philosophy of Science and Technology; Public/Applied History; Asian History; Canadian History; Military History; History, Other;	24.57	not aligned
25-1126	Philosophy and Religion Teachers, Postsecondary	200	\$ 59,860	Doctoral degree	14	120	Philosophy and Religious Studies, General; Philosophy; Ethics; Applied and Professional Ethics; Philosophy, Other; Religion/Religious Studies; Buddhist Studies; Christian Studies; Hindu Studies; Philosophy and Religious Studies, Other; Bible/Biblical Studies; Missions/Missionary Studies and Missiology; Religious Education; Religious/Sacred Music; Theology/Theological Studies; Divinity/Ministry; Pre-Theology/Pre-Ministerial Studies; Rabbinical Studies; Talmudic Studies; Theological and Ministerial Studies, Other; Pastoral Studies/Counseling;	14.29	not aligned
25-1191	Graduate Teaching Assistants	-	\$ -	Doctoral degree	872	-	NO MATCH;	-	undetermined

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25-1192	Home Economics Teachers, Postsecondary	220	\$ 63,520	Doctoral degree	21	713	Family and Consumer Sciences/Home Economics Teacher Education; Family and Consumer Sciences/Human Sciences, General; Business Family and Consumer Sciences/Human Sciences; Foodservice Systems Administration/Management; Human Development and Family Studies, General; Child Care and Support Services Management;	43.84	not aligned
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	190	\$ 52,930	Doctoral degree	16	1,152	Physical Education Teaching and Coaching; Parks, Recreation and Leisure Studies; Health and Physical Education/Fitness, General; Sport and Fitness Administration/Management; Sports Studies;	48.69	not aligned
25-1194	Vocational Education Teachers, Postsecondary	1,410	\$ 45,420	Doctoral degree	559	624	Agricultural Teacher Education; Business Teacher Education; Technology Teacher Education/Industrial Arts Teacher Education; Sales and Marketing Operations/Marketing and Distribution Teacher Education; Technical Teacher Education; Trade and Industrial Teacher Education; Health Occupations Teacher Education; Truck and Bus Driver/Commercial Vehicle Operator and Instructor;	0.66	potential undersupply
25-1199	Postsecondary Teachers, All Other	1,680	\$ 68,630	Doctoral degree	1,088	9,444	Culinary Science/Culinology; Packaging Science; Linguistics of ASL and Other Sign Languages; Writing, General; Creative Writing; Professional, Technical, Business, and Scientific Writing; Rhetoric and Composition; Liberal Arts and Sciences/Liberal Studies; General Studies; Humanities/Humanistic Studies; Cultural Studies/Critical Theory and Analysis; Maritime Studies; Computational Science; Marine Sciences; Sustainability Studies; Materials Sciences, Other; Physical Sciences, Other; Terrorism and Counterterrorism Operations; Game and Interactive Media Design;	14.43	not aligned
25-2011	Preschool Teachers, Except Special Education	2,170	\$ 28,340	Postsecondary vocational training	589	235	Kindergarten/Preschool Education and Teaching; Early Childhood Education and Teaching; Child Care and Support Services Management;	0.40	potential undersupply
25-2012	Kindergarten Teachers, Except Special Education	1,710	\$ 44,660	Bachelor's degree	186	73	Bilingual and Multilingual Education; Kindergarten/Preschool Education and Teaching; Early Childhood Education and Teaching; Teaching English as a Second or Foreign Language/ESL Language Instructor;	0.34	potential undersupply
25-2021	Elementary School Teachers, Except Special Education	15,120	\$ 44,240	Bachelor's degree	2,352	1,759	Bilingual and Multilingual Education; Elementary Education and Teaching; Teacher Education, Multiple Levels; Environmental Education; Teaching English as a Second or Foreign Language/ESL Language Instructor;	1.24	aligned
25-2022	Middle School Teachers, Except Special and Career/Technical Education	6,530	\$ 46,050	Bachelor's degree	1,915	1,084	Bilingual and Multilingual Education; Junior High/Intermediate/Middle School Education and Teaching; Art Teacher Education; English/Language Arts Teacher Education; Foreign Language Teacher Education; Health Teacher Education; Family and Consumer Sciences/Home Economics Teacher Education; Technology Teacher Education/Industrial Arts Teacher Education; Mathematics Teacher Education; Music Teacher Education; Physical Education Teaching and Coaching; Reading Teacher Education; Science Teacher Education/General Science Teacher Education; Social Science Teacher Education; Social Studies Teacher Education; Computer Teacher Education; Biology Teacher Education; Chemistry Teacher Education; Drama and Dance Teacher Education; French Language Teacher Education; German Language Teacher Education; Health Occupations Teacher Education; History Teacher Education; Spanish Language Teacher Education; Speech Teacher Education; Geography Teacher Education; Latin Teacher Education; Earth Science Teacher Education; Environmental Education; Teaching English as a Second or Foreign Language/ESL Language Instructor;	0.33	potential undersupply
25-2023	Career/Technical Education Teachers, Middle School	100	\$ 42,530	-	-	228	Agricultural Teacher Education; Business Teacher Education; Family and Consumer Sciences/Home Economics Teacher Education; Technology Teacher Education/Industrial Arts Teacher Education; Sales and Marketing Operations/Marketing and Distribution Teacher Education; Technical Teacher Education; Trade and Industrial Teacher Education; Health Occupations Teacher Education;	-	undetermined

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25-2031	Secondary School Teachers, Except Special and Career/Technical Education	10,180	\$ 45,660	Bachelor's degree	1,991	6,040	Bilingual and Multilingual Education; Junior High/Intermediate/Middle School Education and Teaching; Secondary Education and Teaching; Teacher Education, Multiple Levels; Art Teacher Education; Driver and Safety Teacher Education; English/Language Arts Teacher Education; Foreign Language Teacher Education; Health Teacher Education; Family and Consumer Sciences/Home Economics Teacher Education; Technology Teacher Education/Industrial Arts Teacher Education; Mathematics Teacher Education; Music Teacher Education; Physical Education Teaching and Coaching; Reading Teacher Education; Science Teacher Education/General Science Teacher Education; Social Science Teacher Education; Social Studies Teacher Education; Computer Teacher Education; Biology Teacher Education; Chemistry Teacher Education; Drama and Dance Teacher Education; French Language Teacher Education; German Language Teacher Education; History Teacher Education; Physics Teacher Education; Spanish Language Teacher Education; Speech Teacher Education; Geography Teacher Education; Latin Teacher Education; Psychology Teacher Education; Earth Science Teacher Education; Environmental Education; Teaching English as a Second or Foreign	2.38	not aligned
25-2032	Career/Technical Education Teachers, Secondary School	1,280	\$ 46,240	Bachelor's or higher degree, plus work experience	177	228	Agricultural Teacher Education; Business Teacher Education; Family and Consumer Sciences/Home Economics Teacher Education; Technology Teacher Education/Industrial Arts Teacher Education; Sales and Marketing Operations/Marketing and Distribution Teacher Education; Technical Teacher Education; Trade and Industrial Teacher Education; Health Occupations Teacher Education;	0.74	aligned
25-2051	Special Education Teachers, Preschool	-	\$ -	-	26	429	Special Education and Teaching, General; Education/Teaching of Individuals with Hearing Impairments Including Deafness; Education/Teaching of Individuals with Emotional Disturbances; Education/Teaching of Individuals with Mental Retardation; Education/Teaching of Individuals with Multiple Disabilities; Education/Teaching of Individuals with Orthopedic and Other Physical Health Impairments; Education/Teaching of Individuals with Vision Impairments Including Blindness; Education/Teaching of Individuals with Specific Learning Disabilities; Education/Teaching of Individuals with Speech or Language Impairments; Education/Teaching of Individuals with Autism; Education/Teaching of Individuals Who are Developmentally Delayed; Education/Teaching of Individuals in Early Childhood Special Education Programs; Education/Teaching of Individuals with Traumatic Brain Injuries;	10.01	not aligned
25-2052	Special Education Teachers, Kindergarten and Elementary School	2,520	\$ 47,660	-	289	429	Special Education and Teaching, General; Education/Teaching of Individuals with Hearing Impairments Including Deafness; Education/Teaching of Individuals with Emotional Disturbances; Education/Teaching of Individuals with Mental Retardation; Education/Teaching of Individuals with Multiple Disabilities; Education/Teaching of Individuals with Orthopedic and Other Physical Health Impairments; Education/Teaching of Individuals with Vision Impairments Including Blindness; Education/Teaching of Individuals with Specific Learning Disabilities; Education/Teaching of Individuals with Speech or Language Impairments; Education/Teaching of Individuals with Autism; Education/Teaching of Individuals Who are Developmentally Delayed; Education/Teaching of Individuals with Traumatic Brain Injuries; Education/Teaching of Individuals in Elementary Special Education Programs;	0.89	aligned

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25-2053	Special Education Teachers, Middle School	920	\$ 49,180	-	32	429	Special Education and Teaching, General; Education/Teaching of Individuals with Hearing Impairments Including Deafness; Education/Teaching of Individuals with Emotional Disturbances; Education/Teaching of Individuals with Mental Retardation; Education/Teaching of Individuals with Multiple Disabilities; Education/Teaching of Individuals with Orthopedic and Other Physical Health Impairments; Education/Teaching of Individuals with Vision Impairments Including Blindness; Education/Teaching of Individuals with Specific Learning Disabilities; Education/Teaching of Individuals with Speech or Language Impairments; Education/Teaching of Individuals with Autism; Education/Teaching of Individuals Who are Developmentally Delayed; Education/Teaching of Individuals with Traumatic Brain Injuries; Education/Teaching of Individuals in Junior High/Middle School Special Education Programs;	7.98	not aligned
25-2054	Special Education Teachers, Secondary School	1,390	\$ 51,210	-	144	429	Special Education and Teaching, General; Education/Teaching of Individuals with Hearing Impairments Including Deafness; Education/Teaching of Individuals with Emotional Disturbances; Education/Teaching of Individuals with Mental Retardation; Education/Teaching of Individuals with Multiple Disabilities; Education/Teaching of Individuals with Orthopedic and Other Physical Health Impairments; Education/Teaching of Individuals with Vision Impairments Including Blindness; Education/Teaching of Individuals with Specific Learning Disabilities; Education/Teaching of Individuals with Speech or Language Impairments; Education/Teaching of Individuals with Autism; Education/Teaching of Individuals Who are Developmentally Delayed; Education/Teaching of Individuals with Traumatic Brain Injuries; Education/Teaching of Individuals in Secondary Special Education Programs;	1.79	aligned
25-2059	Special Education Teachers, All Other	-	\$ -	-	243	429	Special Education and Teaching, General; Education/Teaching of Individuals with Hearing Impairments Including Deafness; Education/Teaching of Individuals with Emotional Disturbances; Education/Teaching of Individuals with Mental Retardation; Education/Teaching of Individuals with Multiple Disabilities; Education/Teaching of Individuals with Orthopedic and Other Physical Health Impairments; Education/Teaching of Individuals with Vision Impairments Including Blindness; Education/Teaching of Individuals with Specific Learning Disabilities; Education/Teaching of Individuals with Speech or Language Impairments; Education/Teaching of Individuals with Autism; Education/Teaching of Individuals Who are Developmentally Delayed; Education/Teaching of Individuals with Traumatic Brain Injuries; Special Education and Teaching, Other;	1.06	aligned
25-3011	Adult Basic and Secondary Education and Literacy Teachers and Instructors	440	\$ 39,540	Bachelor's degree	40	169	Bilingual and Multilingual Education; Multicultural Education; Bilingual, Multilingual, and Multicultural Education, Other; Adult and Continuing Education and Teaching; Teaching English as a Second or Foreign Language/ESL Language Instructor; Adult Literacy Tutor/Instructor;	3.97	not aligned
25-3021	Self-Enrichment Education Teachers	800	\$ 37,380	Work experience in a related occupation	467	146	Adult and Continuing Education and Teaching;	0.31	potential undersupply
25-3099	Teachers and Instructors, All Other	9,200	\$ 29,090	Bachelor's degree	569	-	Bilingual and Multilingual Education; Multicultural Education; Indian/Native American Education; Montessori Teacher Education; Waldorf/Steiner Teacher Education; Driver and Safety Teacher Education;	-	undetermined
25-4011	Archivists	40	\$ 46,640	-	-	160	Archives/Archival Administration; Historic Preservation and Conservation; Cultural Resource Management and Policy Analysis; Historic Preservation and Conservation, Other; Museology/Museum Studies; Art History, Criticism and Conservation; Public/Applied History;	-	undetermined
25-4012	Curators	110	\$ 45,280	Master's degree	8	160	Museology/Museum Studies; Art History, Criticism and Conservation; Public/Applied History;	13.65	not aligned
25-4013	Museum Technicians and Conservators	180	\$ 34,590	Bachelor's degree	10	160	Museology/Museum Studies; Art History, Criticism and Conservation; Public/Applied History;	10.92	not aligned

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25-4021	Librarians	1,760	\$ 46,920	Master's degree	188	262	School Librarian/School Library Media Specialist; Library and Information Science; Children and Youth Library Services; Library Science and Administration, Other;	1.08	aligned
25-4031	Library Technicians	1,130	\$ 26,220	Postsecondary vocational training	157	-	Library and Archives Assisting;	-	undetermined
25-9011	Audio-Visual and Multimedia Collections Specialists	60	\$ 38,950	-	2	206	Educational/Instructional Technology;	103.00	not aligned
25-9021	Farm and Home Management Advisors	500	\$ 47,360	Bachelor's degree	20	350	Farm/Farm and Ranch Management; Animal/Livestock Husbandry and Production; Crop Production; Agricultural and Extension Education Services; Animal Nutrition; Family and Consumer Sciences/Human Sciences, General; Business Family and Consumer Sciences/Human Sciences; Consumer Merchandising/Retailing Management; Family Resource Management Studies, General; Consumer Economics; Consumer Services and Advocacy; Family and Consumer Economics and Related Services, Other; Housing and Human Environments, General; Home Furnishings and Equipment Installers; Family Systems; Child Development; Family and Community Services; Apparel and Textiles, General;	19.67	not aligned
25-9031	Instructional Coordinators	1,210	\$ 58,030	Master's degree	217	814	Curriculum and Instruction; Educational/Instructional Technology;	5.61	not aligned
25-9041	Teacher Assistants	17,240	\$ 22,050	Short-term on-the-job training	2,208	-	Teacher Assistant/Aide;	-	undetermined
25-9099	Education, Training, and Library Workers, All Other	190	\$ 34,080	Bachelor's degree	8	-	Learning Sciences;	-	undetermined

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Arts, Design, Entertainment, Sports, and Media Occupations									
27-1011	Art Directors	140	\$ 62,540	Bachelor's or higher degree, plus work experience	45	133	Digital Arts; Graphic Design; Intermedia/Multimedia;	1.77	aligned
27-1012	Craft Artists	-	\$ -	-	-	216	Visual and Performing Arts, General; Crafts/Craft Design, Folk Art and Artisanry; Art/Art Studies, General; Drawing; Painting; Sculpture; Printmaking; Ceramic Arts and Ceramics; Fiber, Textile and Weaving Arts; Metal and Jewelry Arts;	-	undetermined
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	50	\$ 36,520	Long-term on-the-job training	5	516	Visual and Performing Arts, General; Art/Art Studies, General; Fine/Studio Arts, General; Drawing; Intermedia/Multimedia; Painting; Sculpture; Printmaking; Ceramic Arts and Ceramics; Fine Arts and Art Studies, Other; Medical Illustration/Medical Illustrator;	70.52	not aligned
27-1014	Multimedia Artists and Animators	80	\$ 47,450	Bachelor's degree	22	226	Animation, Interactive Technology, Video Graphics and Special Effects; Web Page, Digital/Multimedia and Information Resources Design; Modeling, Virtual Environments and Simulation; Digital Arts; Graphic Design; Game and Interactive Media Design; Drawing; Intermedia/Multimedia; Painting;	9.37	not aligned
27-1019	Artists and Related Workers, All Other	-	\$ -	Long-term on-the-job training	4	519	Visual and Performing Arts, General; Digital Arts; Crafts/Craft Design, Folk Art and Artisanry; Commercial and Advertising Art; Graphic Design; Illustration; Fine/Studio Arts, General; Fine Arts and Art Studies, Other;	93.32	not aligned
27-1021	Commercial and Industrial Designers	290	\$ 58,930	Bachelor's degree	69	269	Energy Management and Systems Technology/Technician; Packaging Science; Design and Visual Communications, General; Commercial and Advertising Art; Industrial and Product Design;	2.62	not aligned
27-1022	Fashion Designers	30	\$ 63,190	-	2	9	Apparel and Textile Manufacture; Textile Science; Fashion and Fabric Consultant; Fashion/Apparel Design; Costume Design;	3.90	not aligned
27-1023	Floral Designers	460	\$ 24,450	Short-term on-the-job training	42	-	NO MATCH;	-	undetermined
27-1024	Graphic Designers	2,110	\$ 40,420	Bachelor's degree	790	430	Agricultural Communication/Journalism; Web Page, Digital/Multimedia and Information Resources Design; Computer Graphics; Digital Arts; Design and Visual Communications, General; Commercial and Advertising Art; Industrial and Product Design; Graphic Design;	0.35	potential undersupply
27-1025	Interior Designers	250	\$ 43,380	Associate degree	38	159	Interior Architecture; Facilities Planning and Management; Textile Science; Interior Design;	3.89	not aligned
27-1026	Merchandise Displayers and Window Trimmers	500	\$ 30,040	Moderate-term on-the-job training	2,070	-	NO MATCH;	-	undetermined
27-1027	Set and Exhibit Designers	-	\$ -	-	1	187	Design and Visual Communications, General; Illustration; Technical Theatre/Theatre Design and Technology;	112.20	not aligned
27-1029	Designers, All Other	-	\$ -	Bachelor's degree	6	195	Design and Visual Communications, General; Industrial and Product Design; Illustration;	19.59	not aligned
27-2011	Actors	-	\$ -	Long-term on-the-job training	8	145	Drama and Dramatics/Theatre Arts, General; Acting; Directing and Theatrical Production; Musical Theatre; Dramatic/Theatre Arts and Stagecraft, Other;	12.08	not aligned
27-2012	Producers and Directors	360	\$ 70,820	Bachelor's or higher degree, plus work experience	96	280	Radio and Television; Drama and Dramatics/Theatre Arts, General; Directing and Theatrical Production; Musical Theatre; Dramatic/Theatre Arts and Stagecraft, Other; Film/Cinema/Video Studies; Cinematography and Film/Video Production; Documentary Production; Theatre/Theatre Arts Management;	2.40	not aligned
27-2021	Athletes and Sports Competitors	-	\$ -	-	-	328	Health and Physical Education/Fitness, General;	-	undetermined
27-2022	Coaches and Scouts	3,340	\$ 26,120	Long-term on-the-job training	1,523	1,079	Physical Education Teaching and Coaching; Health and Physical Education/Fitness, General; Sport and Fitness Administration/Management;	0.44	potential undersupply
27-2023	Umpires, Referees, and Other Sports Officials	1,250	\$ 25,110	Long-term on-the-job training	73	-	NO MATCH;	-	undetermined
27-2031	Dancers	-	\$ -	-	-	16	Dance, General; Ballet; Dance, Other; Musical Theatre;	-	undetermined
27-2032	Choreographers	260	\$ 26,160	Work experience in a related occupation	89	16	Dance, General; Ballet; Dance, Other; Musical Theatre;	0.14	potential undersupply
27-2041	Music Directors and Composers	630	\$ 42,820	Bachelor's or higher degree, plus work experience	16	41	Religious/Sacred Music; Musical Theatre; Music Performance, General; Music Theory and Composition; Musicology and Ethnomusicology; Conducting; Voice and Opera; Music Technology; Music, Other; Music Management;	1.99	aligned

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27-2042	Musicians and Singers	500	\$ -	Long-term on-the-job training	17	335	Musical Theatre; Music, General; Music Performance, General; Keyboard Instruments; Voice and Opera; Jazz/Jazz Studies; Stringed Instruments; Music Pedagogy; Brass Instruments; Woodwind Instruments; Percussion Instruments; Music, Other;	19.02	not aligned
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	-	\$ -	Long-term on-the-job training	4	145	Sports Communication; Drama and Dramatics/Theatre Arts, General; Directing and Theatrical Production; Dramatic/Theatre Arts and Stagecraft, Other;	24.17	not aligned
27-3011	Radio and Television Announcers	490	\$ 27,890	Long-term on-the-job training	47	1,052	Communication, General; Speech Communication and Rhetoric; Broadcast Journalism; Radio and Television; Sports Communication;	13.43	not aligned
27-3012	Public Address System and Other Announcers	-	\$ 39,150	Moderate-term on-the-job training	17	1,047	Speech Communication and Rhetoric;	36.64	not aligned
27-3021	Broadcast News Analysts	60	\$ 70,070	-	7	923	Journalism; Broadcast Journalism; Radio and Television; Political Communication;	79.11	not aligned
27-3022	Reporters and Correspondents	460	\$ 33,060	Bachelor's degree	52	993	Agricultural Communication/Journalism; Communication, General; Mass Communication/Media Studies; Journalism; Broadcast Journalism; Photojournalism; Journalism, Other; Political Communication; Sports Communication; International and Intercultural Communication;	11.75	not aligned
27-3031	Public Relations Specialists	2,170	\$ 53,060	Bachelor's degree	1,283	1,047	Communication, General; Speech Communication and Rhetoric; Public Relations, Advertising, and Applied Communication; Public Relations/Image Management; Political Communication; Health Communication; Sports Communication; International and Intercultural Communication; Family and Consumer Sciences/Human Sciences Communication;	0.49	potential undersupply
27-3041	Editors	570	\$ 51,410	Bachelor's degree	47	1,034	Communication, General; Mass Communication/Media Studies; Journalism; Broadcast Journalism; Technical and Scientific Communication; Publishing; Communication, Journalism, and Related Programs, Other; Writing, General; Creative Writing; Professional, Technical, Business, and Scientific Writing; Rhetoric and Composition; Rhetoric and Composition/Writing Studies, Other; General Literature; Children's and Adolescent Literature; Literature, Other; Business/Corporate Communications;	13.51	not aligned
27-3042	Technical Writers	740	\$ 52,370	Bachelor's degree	262	17	Technical and Scientific Communication; Family and Consumer Sciences/Human Sciences Communication; Writing, General; Professional, Technical, Business, and Scientific Writing; Business/Corporate Communications;	0.04	potential undersupply
27-3043	Writers and Authors	290	\$ 51,520	Bachelor's degree	70	2,081	Communication, General; Speech Communication and Rhetoric; Mass Communication/Media Studies; Journalism; Broadcast Journalism; Communication, Journalism, and Related Programs, Other; Family and Consumer Sciences/Human Sciences Communication; Writing, General; Creative Writing; Professional, Technical, Business, and Scientific Writing; Rhetoric and Composition; Rhetoric and Composition/Writing Studies, Other; General Literature; Children's and Adolescent Literature; Literature, Other; Playwriting and Screenwriting; Business/Corporate Communications;	17.99	not aligned
27-3091	Interpreters and Translators	580	\$ 40,870	Long-term on-the-job training	85	581	Deaf Studies; Education/Teaching of Individuals with Hearing Impairments Including Deafness; Foreign Languages and Literatures, General; Linguistics; Language Interpretation and Translation; Applied Linguistics; African Languages, Literatures, and Linguistics; East Asian Languages, Literatures, and Linguistics, General; Chinese Language and Literature; Japanese Language and Literature; Korean Language and Literature; Tibetan Language and Literature; East Asian Languages, Literatures, and Linguistics, Other; Slavic Languages, Literatures, and Linguistics, General; Baltic Languages, Literatures, and Linguistics; Russian Language and Literature; Albanian Language and Literature; Bulgarian Language and Literature; Czech Language and Literature; Polish Language and Literature; Bosnian, Serbian, and Croatian Languages and Literatures; Slovak Language and Literature; Ukrainian Language and Literature; Slavic, Baltic, and Albanian Languages, Literatures, and Linguistics, Other; Germanic Languages, Literatures, and Linguistics, General; German Language and Literature; Scandinavian Languages, Literatures, and Linguistics; Danish Language and Literature; Dutch/Flemish Language and Literature; Norwegian Language and Literature; Swedish	5.92	not aligned
27-3099	Media and Communication Workers, All Other	40	\$ 54,150	-	38	-	Digital Communication and Media/Multimedia; Communications Technology/Technician;	-	undetermined

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27-4011	Audio and Video Equipment Technicians	120	\$ 36,340	Postsecondary vocational training	13	52	Agricultural Communication/Journalism; Photographic and Film/Video Technology/Technician and Assistant; Recording Arts Technology/Technician;	3.49	not aligned
27-4012	Broadcast Technicians	250	\$ 33,410	Associate degree	16	15	Communications Technology/Technician; Radio and Television Broadcasting Technology/Technician; Audiovisual Communications Technologies/Technicians, Other;	0.73	aligned
27-4013	Radio Operators	-	\$ -	-	-	18	Communications Systems Installation and Repair Technology;	-	undetermined
27-4014	Sound Engineering Technicians	30	\$ 28,570	Postsecondary vocational training	4	22	Communications Technology/Technician; Recording Arts Technology/Technician; Music Technology;	5.50	not aligned
27-4021	Photographers	600	\$ 26,830	Long-term on-the-job training	183	240	Photojournalism; Visual and Performing Arts, General; Digital Arts; Commercial Photography; Photography; Art/Art Studies, General;	0.84	aligned
27-4031	Camera Operators, Television, Video, and Motion Picture	50	\$ 43,340	Bachelor's degree	4	15	Radio and Television Broadcasting Technology/Technician; Audiovisual Communications Technologies/Technicians, Other; Cinematography and Film/Video Production; Documentary Production;	2.92	not aligned
27-4032	Film and Video Editors	110	\$ 41,400	Bachelor's degree	16	20	Photojournalism; Radio and Television; Communications Technology/Technician; Radio and Television Broadcasting Technology/Technician; Audiovisual Communications Technologies/Technicians, Other; Cinematography and Film/Video Production; Documentary Production;	0.93	aligned
27-4099	Media and Communication Equipment Workers, All Other	60	\$ 63,820	Moderate-term on-the-job training	6	-	NO MATCH;	-	undetermined

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Healthcare Practitioners and Technical Occupations									
29-1011	Chiropractors	430	\$ 77,740	First professional degree	34	-	Chiropractic;	-	undetermined
29-1021	Dentists, General	700	\$ 130,550	First professional degree	71	-	Dentistry; Advanced General Dentistry; Pediatric Dentistry/Pedodontics; Dental Public Health Residency Program; Pediatric Dentistry Residency Program;	-	undetermined
29-1022	Oral and Maxillofacial Surgeons	-	\$ -	First professional degree	10	-	Oral/Maxillofacial Surgery; Oral and Maxillofacial Surgery Residency Program;	-	undetermined
29-1023	Orthodontists	80	\$ 249,580	First professional degree	8	-	Orthodontics/Orthodontology; Orthodontics Residency Program;	-	undetermined
29-1024	Prosthodontists	-	\$ -	-	-	-	Prosthodontics/Prosthodontology; Prosthodontics Residency Program;	-	undetermined
29-1029	Dentists, All Other Specialists	-	\$ -	-	-	-	Dental Clinical Sciences, General; Oral Biology and Oral and Maxillofacial Pathology; Dental Public Health and Education; Dental Materials; Endodontics/Endodontology; Periodontics/Periodontology; Advanced/Graduate Dentistry and Oral Sciences, Other; Dental Public Health Residency Program; Endodontics Residency Program; Oral and Maxillofacial Pathology Residency Program; Pediatric Dentistry Residency Program; Periodontology Residency Program; Oral and Maxillofacial Radiology Residency Program; Dental Residency Program, Other;	-	undetermined
29-1031	Dietitians and Nutritionists	410	\$ 50,070	Bachelor's degree	464	286	Foods, Nutrition, and Wellness Studies, General; Human Nutrition; Foodservice Systems Administration/Management; Foods, Nutrition, and Related Services, Other; Nutrition Sciences; Dietetics/Dietitian; Clinical Nutrition/Nutritionist; Dietetics and Clinical Nutrition Services, Other;	0.77	aligned
29-1041	Optometrists	410	\$ 105,040	First professional degree	56	-	Optometry;	-	undetermined
29-1051	Pharmacists	2,940	\$ 109,250	First professional degree	1,701	319	Pharmacy; Pharmacy Administration and Pharmacy Policy and Regulatory Affairs; Pharmaceutics and Drug Design; Medicinal and Pharmaceutical Chemistry; Natural Products Chemistry and Pharmacognosy; Clinical and Industrial Drug Development; Pharmacoeconomics/Pharmaceutical Economics; Clinical, Hospital, and Managed Care Pharmacy; Industrial and Physical Pharmacy and Cosmetic Sciences; Pharmaceutical Sciences;	0.22	potential undersupply
29-1061	Anesthesiologists	440	\$ 248,290	NA	40	-	Anesthesiology Residency Program;	-	undetermined
29-1062	Family and General Practitioners	1,180	\$ 186,830	NA	457	335	Medicine; Osteopathic Medicine/Osteopathy; Family Medicine Residency Program;	0.73	aligned
29-1063	Internists, General	170	\$ 230,650	NA	400	-	Internal Medicine Residency Program;	-	undetermined
29-1064	Obstetricians and Gynecologists	110	\$ 226,060	NA	8	-	Obstetrics and Gynecology Residency Program;	-	undetermined
29-1065	Pediatricians, General	180	\$ 189,870	NA	14	-	Pediatrics Residency Program;	-	undetermined
29-1066	Psychiatrists	150	\$ 207,320	NA	16	-	Psychiatry Residency Program; Addiction Psychiatry Residency Program; Child and Adolescent Psychiatry Residency Program; Forensic Psychiatry Residency Program; Geriatric Psychiatry Residency Program; Psychosomatic Medicine Residency Program;	-	undetermined
29-1067	Surgeons	650	\$ -	NA	402	-	Colon and Rectal Surgery Residency Program; General Surgery Residency Program; Neurological Surgery Residency Program; Orthopedic Surgery Residency Program; Plastic Surgery Residency Program; Thoracic Surgery Residency Program; Vascular Surgery Residency Program; Congenital Cardiac Surgery Residency Program; Orthopedic Surgery of the Spine Residency Program; Pediatric Orthopedics Residency Program; Pediatric Surgery Residency Program; Plastic Surgery Within the Head and Neck Residency Program; Surgery of the Hand Residency Program; Surgical Critical Care Residency Program;	-	undetermined

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29-1069	Physicians and Surgeons, All Other	2,450	\$ 191,070	NA	1,115	335	Medicine; Osteopathic Medicine/Osteopathy; Aerospace Medicine Residency Program; Allergy and Immunology Residency Program; Child Neurology Residency Program; Clinical Biochemical Genetics Residency Program; Clinical Cytogenetics Residency Program; Clinical Genetics Residency Program; Clinical Molecular Genetics Residency Program; Dermatology Residency Program; Diagnostic Radiology Residency Program; Emergency Medicine Residency Program; Neurology Residency Program; Nuclear Medicine Residency Program; Occupational Medicine Residency Program; Ophthalmology Residency Program; Otolaryngology Residency Program; Pathology Residency Program; Physical Medicine and Rehabilitation Residency Program; Public Health and General Preventive Medicine Residency Program; Radiation Oncology Residency Program; Radiologic Physics Residency Program; Urology Residency Program; Medical Residency Programs - General Certificates, Other; Adolescent Medicine Residency Program; Blood Banking/Transfusion Medicine Residency Program; Cardiovascular Disease Residency Program; Chemical Pathology Residency Program; Child Abuse Pediatrics Residency Program; Clinical Cardiac Electrophysiology Residency Program; Clinical Neurophysiology Residency Program; Critical Care Medicine Residency Program; Cytopathology Residency Program; Dermatopathology Residency Program; Developmental-Behavioral Pediatrics Residency	0.30	potential undersupply
29-1071	Physician Assistants	1,010	\$ 84,720	Master's degree	652	85	Physician Assistant;	0.13	potential undersupply
29-1081	Podiatrists	50	\$ 143,140	First professional degree	6	-	Podiatric Medicine/Podiatry; Podiatric Medicine and Surgery - 24 Residency Program; Podiatric Medicine and Surgery - 36 Residency Program;	-	undetermined
29-1122	Occupational Therapists	930	\$ 74,270	First professional degree	3,237	123	Occupational Therapy/Therapist;	0.04	potential undersupply
29-1123	Physical Therapists	1,530	\$ 74,000	First professional degree	3,144	159	Physical Therapy/Therapist; Kinesiotherapy/Kinesiotherapist;	0.05	potential undersupply
29-1124	Radiation Therapists	200	\$ 70,170	Associate degree	13	209	Medical Radiologic Technology/Science - Radiation Therapist;	12.10	not aligned
29-1125	Recreational Therapists	240	\$ 37,790	Bachelor's degree	138	-	Therapeutic Recreation/Recreational Therapy;	-	undetermined
29-1126	Respiratory Therapists	1,220	\$ 49,340	Associate degree	705	177	Respiratory Care Therapy/Therapist;	0.20	potential undersupply
29-1127	Speech-Language Pathologists	1,130	\$ 62,000	Master's degree	1,242	381	Communication Sciences and Disorders, General; Speech-Language Pathology/Pathologist; Audiology/Audiologist and Speech-Language Pathology/Pathologist; Communication Disorders Sciences and Services, Other;	0.26	potential undersupply
29-1128	Exercise Physiologists	100	\$ 47,050	-	-	332	Exercise Physiology; Kinesiology and Exercise Science; Kinesiotherapy/Kinesiotherapist;	-	undetermined
29-1129	Therapists, All Other	-	\$ -	Bachelor's degree	17	40	Art Therapy/Therapist; Dance Therapy/Therapist; Music Therapy/Therapist; Animal-Assisted Therapy; Rehabilitation and Therapeutic Professions, Other; Movement Therapy and Movement Education;	2.45	not aligned
29-1131	Veterinarians	700	\$ 77,870	First professional degree	178	235	Veterinary Medicine; Veterinary Sciences/Veterinary Clinical Sciences, General; Veterinary Anatomy; Veterinary Physiology; Veterinary Microbiology and Immunobiology; Veterinary Pathology and Pathobiology; Veterinary Toxicology and Pharmacology; Large Animal/Food Animal and Equine Surgery and Medicine; Small/Companion Animal Surgery and Medicine; Comparative and Laboratory Animal Medicine; Veterinary Preventive Medicine, Epidemiology, and Public Health; Veterinary Infectious Diseases; Veterinary Biomedical and Clinical Sciences, Other; Veterinary Anesthesiology Residency Program; Veterinary Dentistry Residency Program; Veterinary Dermatology Residency Program; Veterinary Emergency and Critical Care Medicine Residency Program; Veterinary Internal Medicine Residency Program; Laboratory Animal Medicine Residency Program; Veterinary Microbiology Residency Program; Veterinary Nutrition Residency Program; Veterinary Ophthalmology Residency Program; Veterinary Pathology Residency Program; Veterinary Practice Residency Program; Veterinary Preventive Medicine Residency Program; Veterinary Radiology Residency Program; Veterinary Surgery Residency Program; Theriogenology Residency Program; Veterinary Toxicology Residency Program; Zoological Medicine Residency Program; Poultry Veterinarian Residency Program; Veterinary Behaviorist Residency Program; Veterinary Clinical Pharmacology Residency Program; Veterinary Residency Programs, Other;	1.32	aligned

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29-1141	Registered Nurses	28,180	\$ 58,750	-	16,817	3,702	Registered Nursing/Registered Nurse; Nursing Administration; Adult Health Nurse/Nursing; Family Practice Nurse/Nursing; Maternal/Child Health and Neonatal Nurse/Nursing; Nursing Science; Pediatric Nurse/Nursing; Psychiatric/Mental Health Nurse/Nursing; Public Health/Community Nurse/Nursing; Perioperative/Operating Room and Surgical Nurse/Nursing; Clinical Nurse Specialist; Critical Care Nursing; Occupational and Environmental Health Nursing; Emergency Room/Trauma Nursing; Nursing Practice; Palliative Care Nursing; Clinical Nurse Leader; Geriatric Nurse/Nursing; Women's Health Nurse/Nursing; Registered Nursing, Nursing Administration, Nursing Research and Clinical Nursing, Other;	0.22	potential undersupply
29-1151	Nurse Anesthetists	-	\$ -	-	5	40	Nurse Anesthetist;	8.00	not aligned
29-1161	Nurse Midwives	-	\$ -	-	-	-	Nurse Midwife/Nursing Midwifery;	-	undetermined
29-1171	Nurse Practitioners	-	\$ -	-	1,017	11	Adult Health Nurse/Nursing; Family Practice Nurse/Nursing; Maternal/Child Health and Neonatal Nurse/Nursing; Pediatric Nurse/Nursing; Psychiatric/Mental Health Nurse/Nursing; Critical Care Nursing; Emergency Room/Trauma Nursing; Nursing Practice; Geriatric Nurse/Nursing; Women's Health Nurse/Nursing; Registered Nursing, Nursing Administration, Nursing Research and Clinical Nursing, Other;	0.01	potential undersupply
29-1181	Audiologists	180	\$ 61,550	-	12	274	Communication Sciences and Disorders, General; Audiology/Audiologist; Audiology/Audiologist and Speech-Language Pathology/Pathologist; Communication Disorders Sciences and Services, Other;	17.55	not aligned
29-1199	Health Diagnosing and Treating Practitioners, All Other	80	\$ 82,100	Bachelor's degree	1,047	-	Alternative and Complementary Medicine and Medical Systems, General; Acupuncture and Oriental Medicine; Naturopathic Medicine/Naturopathy; Homeopathic Medicine/Homeopathy; Ayurvedic Medicine/Ayurveda; Holistic Health; Alternative and Complementary Medicine and Medical Systems, Other; Direct Entry Midwifery; Aromatherapy; Polarity Therapy; Reiki;	-	undetermined
29-2011	Medical and Clinical Laboratory Technologists	2,120	\$ 53,950	Bachelor's degree	306	96	Cytotechnology/Cytotechnologist; Clinical Laboratory Science/Medical Technology/Technologist; Histologic Technology/Histotechnologist; Cytogenetics/Genetics/Clinical Genetics Technology/Technologist; Clinical/Medical Laboratory Science and Allied Professions, Other;	0.31	potential undersupply
29-2012	Medical and Clinical Laboratory Technicians	1,470	\$ 34,410	Associate degree	1,117	33	Clinical/Medical Laboratory Assistant; Blood Bank Technology Specialist; Hematology Technology/Technician; Clinical/Medical Laboratory Technician; Histologic Technician; Clinical/Medical Laboratory Science and Allied Professions, Other;	0.03	potential undersupply
29-2021	Dental Hygienists	1,740	\$ 62,670	Associate degree	204	226	Dental Hygiene/Hygienist;	1.11	aligned
29-2031	Cardiovascular Technologists and Technicians	470	\$ 47,980	Associate degree	435	-	Cardiovascular Technology/Technologist; Electrocardiograph Technology/Technician; Perfusion Technology/Perfusionist; Cardiopulmonary Technology/Technologist;	-	undetermined
29-2032	Diagnostic Medical Sonographers	550	\$ 63,670	Associate degree	239	150	Diagnostic Medical Sonography/Sonographer and Ultrasound Technician;	0.63	potential undersupply
29-2033	Nuclear Medicine Technologists	210	\$ 59,510	Associate degree	15	-	Nuclear Medical Technology/Technologist;	-	undetermined
29-2034	Radiologic Technologists	2,380	\$ 49,240	Associate degree	405	286	Medical Radiologic Technology/Science - Radiation Therapist; Radiologic Technology/Science - Radiographer; Mammography Technician/Technology;	0.72	aligned
29-2035	Magnetic Resonance Imaging Technologists	-	\$ -	-	12	8	Magnetic Resonance Imaging (MRI) Technology/Technician;	1.15	aligned
29-2041	Emergency Medical Technicians and Paramedics	2,720	\$ 26,260	Postsecondary vocational training	310	187	Emergency Medical Technology/Technician (EMT Paramedic);	0.60	potential undersupply
29-2051	Dietetic Technicians	260	\$ 23,930	Postsecondary vocational training	26	239	Foods, Nutrition, and Wellness Studies, General; Nutrition Sciences; Dietetics/Dietitian; Dietetic Technician; Dietitian Assistant;	10.80	not aligned
29-2052	Pharmacy Technicians	3,640	\$ 27,980	Moderate-term on-the-job training	933	21	Pharmacy Technician/Assistant;	0.02	potential undersupply
29-2053	Psychiatric Technicians	190	\$ 27,700	Postsecondary vocational training	151	-	Psychiatric/Mental Health Services Technician;	-	undetermined
29-2054	Respiratory Therapy Technicians	120	\$ 37,850	-	-	196	Respiratory Therapy Technician/Assistant; Respiratory Care Therapy/Therapist;	-	undetermined
29-2055	Surgical Technologists	780	\$ 38,400	Postsecondary vocational training	674	95	Pathology/Pathologist Assistant; Surgical Technology/Technologist; Sterile Processing Technology/Technician;	0.14	potential undersupply
29-2056	Veterinary Technologists and Technicians	550	\$ 29,810	Associate degree	129	26	Veterinary/Animal Health Technology/Technician and Veterinary Assistant;	0.20	potential undersupply
29-2057	Ophthalmic Medical Technicians	-	\$ -	-	1	-	Optometric Technician/Assistant; Ophthalmic Technician/Technologist; Orthoptics/Orthoptist;	-	undetermined

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29-2061	Licensed Practical and Licensed Vocational Nurses	7,070	\$ 37,520	Postsecondary vocational training	4,177	1,724	Licensed Practical/Vocational Nurse Training; Practical Nursing, Vocational Nursing and Nursing Assistants, Other;	0.69	potential undersupply
29-2071	Medical Records and Health Information Technicians	2,440	\$ 32,740	Associate degree	1,815	169	Health Information/Medical Records Technology/Technician; Medical Insurance Coding Specialist/Coder;	0.13	potential undersupply
29-2081	Opticians, Dispensing	460	\$ 27,050	Long-term on-the-job training	62	-	Opticianry/Ophthalmic Dispensing Optician;	-	undetermined
29-2091	Orthotists and Prosthetists	-	\$ -	Long-term on-the-job training	1	-	Orthotist/Prosthetist; Assistive/Augmentative Technology and Rehabilitation Engineering;	-	undetermined
29-2092	Hearing Aid Specialists	-	\$ -	-	-	-	Hearing Instrument Specialist;	-	undetermined
29-2099	Health Technologists and Technicians, All Other	750	\$ 39,270	Postsecondary vocational training	1,809	13	Radiologist Assistant; Electroneurodiagnostic/Electroencephalographic Technology/Technologist; Gene/Genetic Therapy; Polysomnography; Renal/Dialysis Technologist/Technician;	0.01	potential undersupply
29-9011	Occupational Health and Safety Specialists	690	\$ 58,360	Bachelor's degree	426	-	Occupational Safety and Health Technology/Technician; Industrial Safety Technology/Technician; Environmental Health; Occupational Health and Industrial Hygiene;	-	undetermined
29-9012	Occupational Health and Safety Technicians	190	\$ 38,690	Associate degree	23	-	Radiation Protection/Health Physics Technician; Environmental Health; Occupational Health and Industrial Hygiene;	-	undetermined
29-9091	Athletic Trainers	180	\$ 40,780	Bachelor's degree	86	118	Physical Fitness Technician; Athletic Training/Trainer;	2.28	not aligned
29-9092	Genetic Counselors	-	\$ -	-	1	-	Genetic Counseling/Counselor;	-	undetermined
29-9099	Healthcare Practitioners and Technical Workers, All Other	280	\$ 53,490	Bachelor's degree	68	-	Traditional Chinese Medicine and Chinese Herbology; Herbalism/Herbalist;	-	undetermined

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Healthcare Support Occupations									
31-1011	Home Health Aides	8,340	\$ 21,000	Short-term on-the-job training	2,150	860	Home Health Aide/Home Attendant;	0.40	potential undersupply
31-1013	Psychiatric Aides	-	\$ 24,880	Short-term on-the-job training	36	1	Psychiatric/Mental Health Services Technician; Health Aide;	0.03	potential undersupply
31-1014	Nursing Assistants	19,760	\$ 23,030	-	6,183	8,066	Health Aide; Nursing Assistant/Aide and Patient Care Assistant/Aide; Practical Nursing, Vocational Nursing and Nursing Assistants, Other;	2.17	not aligned
31-1015	Orderlies	-	\$ -	-	-	-	NO MATCH;	-	undetermined
31-2011	Occupational Therapy Assistants	260	\$ 53,570	Associate degree	1,050	-	Occupational Therapist Assistant;	-	undetermined
31-2012	Occupational Therapy Aides	30	\$ 29,410	Short-term on-the-job training	4	26	Rehabilitation Aide;	5.06	not aligned
31-2021	Physical Therapist Assistants	940	\$ 53,150	Associate degree	989	143	Physical Therapy Technician/Assistant;	0.24	potential undersupply
31-2022	Physical Therapist Aides	470	\$ 23,790	Short-term on-the-job training	87	26	Rehabilitation Aide;	0.23	potential undersupply
31-9011	Massage Therapists	360	\$ 33,800	Postsecondary vocational training	126	70	Massage Therapy/Therapeutic Massage; Asian Bodywork Therapy; Somatic Bodywork;	0.56	potential undersupply
31-9091	Dental Assistants	3,070	\$ 31,560	Moderate-term on-the-job training	688	102	Dental Assisting/Assistant;	0.15	potential undersupply
31-9092	Medical Assistants	3,990	\$ 27,050	Moderate-term on-the-job training	2,414	316	Medical Office Assistant/Specialist; Medical Reception/Receptionist; Medical Insurance Coding Specialist/Coder; Medical Administrative/Executive Assistant and Medical Secretary; Medical/Clinical Assistant; Anesthesiologist Assistant; Chiropractic Assistant/Technician;	0.18	potential undersupply
31-9093	Medical Equipment Preparers	370	\$ 29,110	Short-term on-the-job training	51	-	Sterile Processing Technology/Technician;	-	undetermined
31-9094	Medical Transcriptionists	1,210	\$ 29,440	Postsecondary vocational training	95	47	Medical Transcription/Transcriptionist;	0.82	aligned
31-9095	Pharmacy Aides	730	\$ 21,960	Short-term on-the-job training	56	-	NO MATCH;	-	undetermined
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	1,260	\$ 22,830	Short-term on-the-job training	135	-	NO MATCH;	-	undetermined
31-9097	Phlebotomists	-	\$ -	-	542	134	Phlebotomy Technician/Phlebotomist;	0.41	potential undersupply
31-9099	Healthcare Support Workers, All Other	1,740	\$ 30,660	Short-term on-the-job training	136	1,561	Radiologist Assistant; Lactation Consultant; Speech-Language Pathology Assistant; Medication Aide; Rehabilitation Aide;	18.93	not aligned

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Protective Service Occupations									
33-1011	First-Line Supervisors of Correctional Officers	400	\$ 48,290	Work experience in a related occupation	43	405	Corrections; Criminal Justice/Safety Studies; Corrections Administration;	7.20	not aligned
33-1012	First-Line Supervisors of Police and Detectives	1,250	\$ 62,820	Work experience in a related occupation	184	519	Natural Resources Law Enforcement and Protective Services; Corrections; Criminal Justice/Law Enforcement Administration; Criminal Justice/Safety Studies; Law Enforcement Record-Keeping and Evidence Management; Critical Incident Response/Special Police Operations; Protective Services Operations; Maritime Law Enforcement; Cultural/Archaeological Resources Protection; Homeland Security; Crisis/Emergency/Disaster Management; Critical Infrastructure Protection; Terrorism and Counterterrorism Operations;	2.16	not aligned
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	820	\$ 59,420	Work experience in a related occupation	90	6	Natural Resources Law Enforcement and Protective Services; Fire Services Administration; Fire Protection, Other;	0.07	potential undersupply
33-1099	First-Line Supervisors of Protective Service Workers, All Other	360	\$ 42,870	Work experience in a related occupation	28	10	Securities Services Administration/Management; Homeland Security, Other;	0.59	potential undersupply
33-2011	Firefighters	3,930	\$ 39,750	Long-term on-the-job training	349	191	Natural Resources Law Enforcement and Protective Services; Fire Prevention and Safety Technology/Technician; Fire Science/Fire-fighting; Wildland/Forest Firefighting and Investigation; Fire Protection, Other;	0.48	potential undersupply
33-2021	Fire Inspectors and Investigators	100	\$ 50,950	-	-	185	Fire Prevention and Safety Technology/Technician; Fire Science/Fire-fighting; Fire/Arson Investigation and Prevention;	-	undetermined
33-2022	Forest Fire Inspectors and Prevention Specialists	-	\$ -	-	-	107	Natural Resources Law Enforcement and Protective Services; Fire Science/Fire-fighting; Wildland/Forest Firefighting and Investigation;	-	undetermined
33-3011	Bailiffs	70	\$ 35,480	Moderate-term on-the-job training	4	179	Criminal Justice/Police Science;	26.85	not aligned
33-3012	Correctional Officers and Jailers	4,330	\$ 32,640	Moderate-term on-the-job training	776	84	Corrections; Juvenile Corrections; Corrections and Criminal Justice, Other;	0.09	potential undersupply
33-3021	Detectives and Criminal Investigators	1,050	\$ 61,650	Work experience in a related occupation	52	179	Natural Resources Law Enforcement and Protective Services; Criminal Justice/Police Science; Criminalistics and Criminal Science; Law Enforcement Investigation and Interviewing; Law Enforcement Record-Keeping and Evidence Management; Cyber/Computer Forensics and Counterterrorism; Financial Forensics and Fraud Investigation; Law Enforcement Intelligence Analysis; Suspension and Debarment Investigation; Maritime Law Enforcement; Cultural/Archaeological Resources Protection;	2.07	aligned
33-3031	Fish and Game Wardens	-	\$ -	-	-	-	Natural Resource Economics; Natural Resources Law Enforcement and Protective Services; Fishing and Fisheries Sciences and Management; Wildlife, Fish and Wildlands Science and Management;	-	undetermined
33-3041	Parking Enforcement Workers	70	\$ 30,300	-	1	-	NO MATCH;	-	undetermined
33-3051	Police and Sheriff's Patrol Officers	6,150	\$ 42,980	Long-term on-the-job training	981	179	Natural Resources Law Enforcement and Protective Services; Criminal Justice/Police Science; Criminalistics and Criminal Science; Law Enforcement Investigation and Interviewing; Law Enforcement Record-Keeping and Evidence Management; Critical Incident Response/Special Police Operations; Protective Services Operations; Maritime Law Enforcement;	0.11	potential undersupply
33-3052	Transit and Railroad Police	-	\$ -	-	-	-	Security and Loss Prevention Services;	-	undetermined
33-9011	Animal Control Workers	200	\$ 28,100	Moderate-term on-the-job training	19	-	NO MATCH;	-	undetermined
33-9021	Private Detectives and Investigators	90	\$ 48,510	-	-	179	Criminal Justice/Police Science; Law Enforcement Record-Keeping and Evidence Management; Cyber/Computer Forensics and Counterterrorism; Financial Forensics and Fraud Investigation; Protective Services Operations; Maritime Law Enforcement; Cultural/Archaeological Resources Protection;	-	undetermined
33-9031	Gaming Surveillance Officers and Gaming Investigators	-	\$ -	-	2	-	NO MATCH;	-	undetermined
33-9032	Security Guards	6,070	\$ 26,910	Short-term on-the-job training	1,673	-	NO MATCH;	-	undetermined

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33-9091	Crossing Guards	370	\$ 21,070	Short-term on-the-job training	33	-	NO MATCH;	-	undetermined
33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	2,050	\$ 17,660	Short-term on-the-job training	493	-	Natural Resources Law Enforcement and Protective Services;	-	undetermined
33-9093	Transportation Security Screeners	110	\$ 36,100	-	-	-	NO MATCH;	-	undetermined
33-9099	Protective Service Workers, All Other	620	\$ 27,870	Short-term on-the-job training	553	-	NO MATCH;	-	undetermined

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Food Preparation and Serving Related Occupations									
35-1011	Chefs and Head Cooks	740	\$ 38,570	Work experience in a related occupation	202	120	Cooking and Related Culinary Arts, General; Baking and Pastry Arts/Baker/Pastry Chef; Culinary Arts/Chef Training; Restaurant, Culinary, and Catering Management/Manager; Culinary Science/Culinology;	0.43	potential undersupply
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	9,250	\$ 27,620	Work experience in a related occupation	3,620	92	Cooking and Related Culinary Arts, General; Culinary Arts/Chef Training; Restaurant, Culinary, and Catering Management/Manager; Food Service, Waiter/Waitress, and Dining Room Management/Manager; Foodservice Systems Administration/Management;	0.02	potential undersupply
35-2011	Cooks, Fast Food	7,130	\$ 17,730	Short-term on-the-job training	803	-	NO MATCH;	-	undetermined
35-2012	Cooks, Institution and Cafeteria	6,080	\$ 21,890	Moderate-term on-the-job training	721	41	Cooking and Related Culinary Arts, General; Food Preparation/Professional Cooking/Kitchen Assistant; Institutional Food Workers; Foodservice Systems Administration/Management;	0.04	potential undersupply
35-2013	Cooks, Private Household	-	\$ -	-	-	133	Culinary Arts/Chef Training; Restaurant, Culinary, and Catering Management/Manager; Food Preparation/Professional Cooking/Kitchen Assistant;	-	undetermined
35-2014	Cooks, Restaurant	7,880	\$ 20,440	Long-term on-the-job training	2,197	39	Cooking and Related Culinary Arts, General; Culinary Arts/Chef Training;	0.01	potential undersupply
35-2015	Cooks, Short Order	2,050	\$ 18,260	Short-term on-the-job training	318	-	NO MATCH;	-	undetermined
35-2019	Cooks, All Other	-	\$ -	-	-	80	Cooking and Related Culinary Arts, General; Culinary Arts/Chef Training; Food Preparation/Professional Cooking/Kitchen Assistant; Culinary Science/Culinology;	-	undetermined
35-2021	Food Preparation Workers	8,130	\$ 18,650	Short-term on-the-job training	1,059	-	NO MATCH;	-	undetermined
35-3011	Bartenders	5,320	\$ 19,140	Short-term on-the-job training	691	-	Bartending/Bartender;	-	undetermined
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	23,670	\$ 17,910	Short-term on-the-job training	3,889	-	NO MATCH;	-	undetermined
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	3,880	\$ 17,300	Short-term on-the-job training	748	-	NO MATCH;	-	undetermined
35-3031	Waiters and Waitresses	21,970	\$ 18,950	Short-term on-the-job training	5,649	-	NO MATCH;	-	undetermined
35-3041	Food Servers, Nonrestaurant	3,930	\$ 17,950	Short-term on-the-job training	248	-	NO MATCH;	-	undetermined
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	2,940	\$ 18,150	Short-term on-the-job training	711	-	NO MATCH;	-	undetermined
35-9021	Dishwashers	4,170	\$ 17,950	Short-term on-the-job training	588	-	NO MATCH;	-	undetermined
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	3,360	\$ 18,280	Short-term on-the-job training	640	-	NO MATCH;	-	undetermined
35-9099	Food Preparation and Serving Related Workers, All Other	230	\$ 21,050	Short-term on-the-job training	98	-	NO MATCH;	-	undetermined

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Building and Grounds Cleaning and Maintenance Occupations									
37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	2,070	\$ 33,610	Work experience in a related occupation	120	85	Building/Property Maintenance;	0.55	potential undersupply
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	930	\$ 45,590	Work experience in a related occupation	232	17	Applied Horticulture/Horticulture Operations, General; Ornamental Horticulture; Greenhouse Operations and Management; Landscaping and Groundskeeping; Plant Nursery Operations and Management; Turf and Turfgrass Management; Golf Course Operation and Grounds Management;	0.06	potential undersupply
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	21,670	\$ 22,540	Short-term on-the-job training	3,002	-	NO MATCH;	-	undetermined
37-2012	Maids and Housekeeping Cleaners	8,070	\$ 18,420	Short-term on-the-job training	1,755	-	NO MATCH;	-	undetermined
37-2019	Building Cleaning Workers, All Other	-	\$ -	-	6	-	NO MATCH;	-	undetermined
37-2021	Pest Control Workers	620	\$ 27,530	-	-	-	NO MATCH;	-	undetermined
37-3011	Landscaping and Groundskeeping Workers	8,400	\$ 24,410	Short-term on-the-job training	1,328	-	NO MATCH;	-	undetermined
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	560	\$ 33,110	Moderate-term on-the-job training	88	1	Landscaping and Groundskeeping; Plant Nursery Operations and Management; Turf and Turfgrass Management;	0.01	potential undersupply
37-3013	Tree Trimmers and Pruners	560	\$ 33,000	Short-term on-the-job training	34	-	NO MATCH;	-	undetermined
37-3019	Grounds Maintenance Workers, All Other	90	\$ 35,330	Short-term on-the-job training	11	-	NO MATCH;	-	undetermined

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Personal Care and Service Occupations									
39-1011	Gaming Supervisors	-	\$ -	-	7	-	Casino Management;	-	undetermined
39-1012	Slot Supervisors	-	\$ -	-	-	-	Casino Management;	-	undetermined
39-1021	First-Line Supervisors of Personal Service Workers	1,630	\$ 32,600	Work experience in a related occupation	188	-	Salon/Beauty Salon Management/Manager;	-	undetermined
39-2011	Animal Trainers	60	\$ 34,040	Moderate-term on-the-job training	50	5	Animal Training; Equestrian/Equine Studies;	0.10	potential undersupply
39-2021	Nonfarm Animal Caretakers	1,560	\$ 20,750	Short-term on-the-job training	649	-	Dog/Pet/Animal Grooming;	-	undetermined
39-3011	Gaming Dealers	-	\$ -	-	31	-	NO MATCH;	-	undetermined
39-3012	Gaming and Sports Book Writers and Runners	-	\$ -	-	-	-	NO MATCH;	-	undetermined
39-3019	Gaming Service Workers, All Other	-	\$ -	-	-	-	NO MATCH;	-	undetermined
39-3021	Motion Picture Projectionists	120	\$ 19,410	Short-term on-the-job training	29	-	NO MATCH;	-	undetermined
39-3031	Ushers, Lobby Attendants, and Ticket Takers	1,180	\$ 18,460	Short-term on-the-job training	391	-	NO MATCH;	-	undetermined
39-3091	Amusement and Recreation Attendants	2,160	\$ 18,300	Short-term on-the-job training	561	-	NO MATCH;	-	undetermined
39-3092	Costume Attendants	-	\$ -	-	-	-	NO MATCH;	-	undetermined
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	530	\$ 17,500	Short-term on-the-job training	75	-	NO MATCH;	-	undetermined
39-3099	Entertainment Attendants and Related Workers, All Other	-	\$ -	-	-	-	NO MATCH;	-	undetermined
39-4011	Embalmers	170	\$ 41,780	Postsecondary vocational training	14	51	Funeral Service and Mortuary Science, General; Mortuary Science and Embalming/Embalmer;	2.83	not aligned
39-4021	Funeral Attendants	410	\$ 19,250	Short-term on-the-job training	44	-	NO MATCH;	-	undetermined
39-4031	Morticians, Undertakers, and Funeral Directors	-	\$ -	-	-	51	Funeral Service and Mortuary Science, General; Funeral Direction/Service; Funeral Service and Mortuary Science, Other;	-	undetermined
39-5011	Barbers	-	\$ 27,500	-	-	-	Barbering/Barber; Hair Styling/Stylist and Hair Design; Salon/Beauty Salon Management/Manager; Cosmetology, Barber/Styling, and Nail Instructor;	-	undetermined
39-5012	Hairdressers, Hairstylists, and Cosmetologists	3,860	\$ 24,090	Postsecondary vocational training	1,030	301	Cosmetology/Cosmetologist, General; Electrolysis/Electrology and Electrolysis Technician; Make-Up Artist/Specialist; Hair Styling/Stylist and Hair Design; Permanent Cosmetics/Makeup and Tattooing; Salon/Beauty Salon Management/Manager; Cosmetology, Barber/Styling, and Nail Instructor; Cosmetology and Related Personal Grooming Arts, Other;	0.19	potential undersupply
39-5091	Makeup Artists, Theatrical and Performance	-	\$ -	-	-	301	Cosmetology/Cosmetologist, General; Make-Up Artist/Specialist; Permanent Cosmetics/Makeup and Tattooing;	-	undetermined
39-5092	Manicurists and Pedicurists	130	\$ 23,320	Postsecondary vocational training	69	342	Cosmetology/Cosmetologist, General; Nail Technician/Specialist and Manicurist;	3.90	not aligned
39-5093	Shampooers	-	\$ -	-	-	-	NO MATCH;	-	undetermined
39-5094	Skincare Specialists	210	\$ 35,870	Postsecondary vocational training	20	316	Cosmetology/Cosmetologist, General; Facial Treatment Specialist/Facialist; Aesthetician/Esthetician and Skin Care Specialist; Master Aesthetician/Esthetician;	11.28	not aligned
39-6011	Baggage Porters and Bellhops	-	\$ 17,250	-	-	-	NO MATCH;	-	undetermined
39-6012	Concierges	-	\$ 24,830	-	-	-	NO MATCH;	-	undetermined
39-7011	Tour Guides and Escorts	110	\$ 23,240	-	16	-	NO MATCH;	-	undetermined
39-7012	Travel Guides	-	\$ -	-	-	1	Tourism and Travel Services Management;	-	undetermined
39-9011	Childcare Workers	5,160	\$ 19,600	Short-term on-the-job training	1,969	51	Child Care Provider/Assistant;	0.04	potential undersupply
39-9021	Personal Care Aides	14,410	\$ 19,080	Short-term on-the-job training	3,222	860	Home Health Aide/Home Attendant;	0.27	potential undersupply
39-9031	Fitness Trainers and Aerobics Instructors	3,660	\$ 28,410	Postsecondary vocational training	1,036	1,079	Physical Education Teaching and Coaching; Health and Physical Education/Fitness, General; Sport and Fitness Administration/Management; Physical Fitness Technician; Yoga Teacher Training/Yoga Therapy;	0.65	potential undersupply
39-9032	Recreation Workers	2,810	\$ 22,710	Short-term on-the-job training	826	-	NO MATCH;	-	undetermined
39-9041	Residential Advisors	830	\$ 25,570	Short-term on-the-job training	240	-	NO MATCH;	-	undetermined
39-9099	Personal Care and Service Workers, All Other	-	\$ 20,050	Short-term on-the-job training	23	-	NO MATCH;	-	undetermined

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Sales and Related Occupations									
41-1011	First-Line Supervisors of Retail Sales Workers	12,380	\$ 37,280	Work experience in a related occupation	9,208	118	Floriculture/Floristry Operations and Management; Consumer Merchandising/Retailing Management; E-Commerce/Electronic Commerce; Retail Management; Retailing and Retail Operations; Selling Skills and Sales Operations; General Merchandising, Sales, and Related Marketing Operations, Other; Special Products Marketing Operations;	0.01	potential undersupply
41-1012	First-Line Supervisors of Non-Retail Sales Workers	2,580	\$ 81,390	Work experience in a related occupation	1,483	2	Selling Skills and Sales Operations; General Merchandising, Sales, and Related Marketing Operations, Other; Special Products Marketing Operations;	0.00	potential undersupply
41-2011	Cashiers	36,220	\$ 18,500	Short-term on-the-job training	5,916	-	NO MATCH;	-	undetermined
41-2012	Gaming Change Persons and Booth Cashiers	100	\$ 27,680	-	8	-	NO MATCH;	-	undetermined
41-2021	Counter and Rental Clerks	3,880	\$ 26,180	Short-term on-the-job training	368	-	NO MATCH;	-	undetermined
41-2022	Parts Salespersons	3,320	\$ 31,650	Moderate-term on-the-job training	352	2	Selling Skills and Sales Operations; Vehicle and Vehicle Parts and Accessories Marketing Operations;	0.00	potential undersupply
41-2031	Retail Salespersons	38,430	\$ 24,040	Short-term on-the-job training	14,765	-	NO MATCH;	-	undetermined
41-3011	Advertising Sales Agents	1,260	\$ 45,790	Moderate-term on-the-job training	576	2	Selling Skills and Sales Operations;	0.00	potential undersupply
41-3021	Insurance Sales Agents	4,070	\$ 56,010	Postsecondary vocational training	1,714	-	Insurance;	-	undetermined
41-3031	Securities, Commodities, and Financial Services Sales Agents	1,410	\$ 95,530	Bachelor's degree	1,459	3	Financial Planning and Services; Investments and Securities; Business and Personal/Financial Services Marketing Operations;	0.00	potential undersupply
41-3041	Travel Agents	380	\$ 33,730	Postsecondary vocational training	19	2	Selling Skills and Sales Operations; Tourism and Travel Services Marketing Operations;	0.05	potential undersupply
41-3099	Sales Representatives, Services, All Other	6,280	\$ 58,870	Work experience in a related occupation	3,089	112	Retailing and Retail Operations; Selling Skills and Sales Operations;	0.02	potential undersupply
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	5,130	\$ 81,310	Work experience in a related occupation	1,096	2	Selling Skills and Sales Operations;	0.00	potential undersupply
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	14,960	\$ 62,780	Work experience in a related occupation	9,732	20	Sales, Distribution, and Marketing Operations, General; General Merchandising, Sales, and Related Marketing Operations, Other; Fashion Merchandising; Apparel and Accessories Marketing Operations; Special Products Marketing Operations;	0.00	potential undersupply
41-9011	Demonstrators and Product Promoters	320	\$ 24,140	Moderate-term on-the-job training	476	110	Retailing and Retail Operations;	0.15	potential undersupply
41-9012	Models	-	\$ -	-	-	-	Fashion Modeling;	-	undetermined
41-9021	Real Estate Brokers	260	\$ 71,850	Work experience in a related occupation	16	-	Real Estate Development; Real Estate;	-	undetermined
41-9022	Real Estate Sales Agents	500	\$ 41,070	Postsecondary vocational training	686	-	Real Estate Development; Real Estate;	-	undetermined
41-9031	Sales Engineers	490	\$ 85,400	Bachelor's degree	258	-	NO MATCH;	-	undetermined
41-9041	Telemarketers	2,220	\$ 25,130	Short-term on-the-job training	213	-	NO MATCH;	-	undetermined
41-9091	Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	-	\$ -	Short-term on-the-job training	24	-	NO MATCH;	-	undetermined
41-9099	Sales and Related Workers, All Other	960	\$ 34,140	Short-term on-the-job training	150	112	Retailing and Retail Operations; Selling Skills and Sales Operations; Auctioneering; Special Products Marketing Operations;	0.50	potential undersupply

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Office and Administrative Support Occupations									
43-1011	First-Line Supervisors of Office and Administrative Support Workers	11,930	\$ 46,540	Work experience in a related occupation	3,388	8	Agricultural Business Technology; Medical Office Management/Administration; Medical/Health Management and Clinical Assistant/Specialist; Office Management and Supervision; Customer Service Management; E-Commerce/Electronic Commerce;	0.00	potential undersupply
43-2011	Switchboard Operators, Including Answering Service	2,020	\$ 25,000	Short-term on-the-job training	69	-	NO MATCH;	-	undetermined
43-2021	Telephone Operators	-	\$ -	Short-term on-the-job training	18	-	NO MATCH;	-	undetermined
43-2099	Communications Equipment Operators, All Other	-	\$ -	-	-	-	NO MATCH;	-	undetermined
43-3011	Bill and Account Collectors	5,860	\$ 28,450	Short-term on-the-job training	2,374	1	Banking and Financial Support Services;	0.00	potential undersupply
43-3021	Billing and Posting Clerks	5,730	\$ 30,120	Short-term on-the-job training	1,195	-	NO MATCH;	-	undetermined
43-3031	Bookkeeping, Accounting, and Auditing Clerks	18,080	\$ 32,260	Moderate-term on-the-job training	4,084	106	Accounting Technology/Technician and Bookkeeping;	0.02	potential undersupply
43-3041	Gaming Cage Workers	-	\$ -	-	2	-	NO MATCH;	-	undetermined
43-3051	Payroll and Timekeeping Clerks	2,270	\$ 34,460	Moderate-term on-the-job training	548	106	Accounting Technology/Technician and Bookkeeping;	0.12	potential undersupply
43-3061	Procurement Clerks	810	\$ 34,240	-	208	14	General Office Occupations and Clerical Services;	0.04	potential undersupply
43-3071	Tellers	6,280	\$ 23,220	Short-term on-the-job training	3,693	1	Banking and Financial Support Services;	0.00	potential undersupply
43-3099	Financial Clerks, All Other	-	\$ -	-	1	-	NO MATCH;	-	undetermined
43-4011	Brokerage Clerks	240	\$ 37,980	Moderate-term on-the-job training	41	106	Accounting Technology/Technician and Bookkeeping;	1.54	aligned
43-4021	Correspondence Clerks	-	\$ -	-	-	-	NO MATCH;	-	undetermined
43-4031	Court, Municipal, and License Clerks	1,130	\$ 31,620	Short-term on-the-job training	103	-	NO MATCH;	-	undetermined
43-4041	Credit Authorizers, Checkers, and Clerks	220	\$ 35,340	Short-term on-the-job training	12	1	Banking and Financial Support Services;	0.05	potential undersupply
43-4051	Customer Service Representatives	23,840	\$ 30,810	Moderate-term on-the-job training	10,873	-	Receptionist; Customer Service Support/Call Center/Teleservice Operation;	-	undetermined
43-4061	Eligibility Interviewers, Government Programs	990	\$ 35,980	Moderate-term on-the-job training	90	-	Community Organization and Advocacy;	-	undetermined
43-4071	File Clerks	1,340	\$ 25,520	Short-term on-the-job training	417	-	NO MATCH;	-	undetermined
43-4081	Hotel, Motel, and Resort Desk Clerks	2,080	\$ 19,200	Short-term on-the-job training	716	-	NO MATCH;	-	undetermined
43-4111	Interviewers, Except Eligibility and Loan	1,700	\$ 27,910	Short-term on-the-job training	1,149	-	NO MATCH;	-	undetermined
43-4121	Library Assistants, Clerical	1,500	\$ 21,300	Short-term on-the-job training	198	-	NO MATCH;	-	undetermined
43-4131	Loan Interviewers and Clerks	2,220	\$ 32,610	Short-term on-the-job training	591	1	Banking and Financial Support Services;	0.00	potential undersupply
43-4141	New Accounts Clerks	760	\$ 30,810	Work experience in a related occupation	88	1	Banking and Financial Support Services;	0.01	potential undersupply
43-4151	Order Clerks	1,960	\$ 28,380	Short-term on-the-job training	190	-	NO MATCH;	-	undetermined
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	1,600	\$ 35,360	Short-term on-the-job training	534	-	NO MATCH;	-	undetermined
43-4171	Receptionists and Information Clerks	9,500	\$ 24,230	Short-term on-the-job training	2,974	-	Receptionist;	-	undetermined
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	260	\$ 27,170	Short-term on-the-job training	12	-	NO MATCH;	-	undetermined
43-4199	Information and Record Clerks, All Other	1,240	\$ 37,010	Short-term on-the-job training	126	-	NO MATCH;	-	undetermined

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43-5011	Cargo and Freight Agents	320	\$ 38,130	Moderate-term on-the-job training	43	14	General Office Occupations and Clerical Services; Traffic, Customs, and Transportation Clerk/Technician;	0.20	potential undersupply
43-5021	Couriers and Messengers	610	\$ 27,990	Short-term on-the-job training	40	-	NO MATCH;	-	undetermined
43-5031	Police, Fire, and Ambulance Dispatchers	1,230	\$ 29,060	Moderate-term on-the-job training	193	-	NO MATCH;	-	undetermined
43-5032	Dispatchers, Except Police, Fire, and Ambulance	1,860	\$ 37,110	Moderate-term on-the-job training	107	-	Traffic, Customs, and Transportation Clerk/Technician;	-	undetermined
43-5041	Meter Readers, Utilities	470	\$ 31,880	Short-term on-the-job training	33	-	NO MATCH;	-	undetermined
43-5051	Postal Service Clerks	630	\$ 53,030	Short-term on-the-job training	30	-	NO MATCH;	-	undetermined
43-5052	Postal Service Mail Carriers	3,320	\$ 49,520	Short-term on-the-job training	302	-	NO MATCH;	-	undetermined
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	1,070	\$ 43,460	Short-term on-the-job training	140	-	NO MATCH;	-	undetermined
43-5061	Production, Planning, and Expediting Clerks	3,220	\$ 44,400	Moderate-term on-the-job training	1,417	8	Parts, Warehousing, and Inventory Management Operations;	0.01	potential undersupply
43-5071	Shipping, Receiving, and Traffic Clerks	8,880	\$ 29,410	Short-term on-the-job training	1,052	-	NO MATCH;	-	undetermined
43-5081	Stock Clerks and Order Fillers	16,790	\$ 22,630	Short-term on-the-job training	3,312	-	NO MATCH;	-	undetermined
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	580	\$ 29,560	Short-term on-the-job training	44	-	NO MATCH;	-	undetermined
43-6011	Executive Secretaries and Executive Administrative Assistants	10,460	\$ 41,710	Work experience in a related occupation	4,773	297	Administrative Assistant and Secretarial Science, General; Executive Assistant/Executive Secretary;	0.06	potential undersupply
43-6012	Legal Secretaries	1,620	\$ 32,750	Associate degree	231	34	Legal Administrative Assistant/Secretary;	0.25	potential undersupply
43-6013	Medical Secretaries	3,230	\$ 29,430	Moderate-term on-the-job training	1,888	64	Medical Office Assistant/Specialist; Medical Insurance Specialist/Medical Biller; Medical Administrative/Executive Assistant and Medical Secretary;	0.03	potential undersupply
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	23,320	\$ 27,790	Moderate-term on-the-job training	5,705	297	Administrative Assistant and Secretarial Science, General; Executive Assistant/Executive Secretary;	0.05	potential undersupply
43-9011	Computer Operators	920	\$ 35,280	Moderate-term on-the-job training	24	21	Data Processing and Data Processing Technology/Technician;	0.88	aligned
43-9021	Data Entry Keyers	3,960	\$ 29,360	Moderate-term on-the-job training	988	39	Graphic and Printing Equipment Operator, General Production; Data Entry/Microcomputer Applications, General; Business/Office Automation/Technology/Data Entry;	0.04	potential undersupply
43-9022	Word Processors and Typists	340	\$ 29,070	Moderate-term on-the-job training	6	16	Word Processing; General Office Occupations and Clerical Services;	1.96	aligned
43-9031	Desktop Publishers	300	\$ 33,920	Postsecondary vocational training	52	48	Prepress/Desktop Publishing and Digital Imaging Design;	0.92	aligned
43-9041	Insurance Claims and Policy Processing Clerks	2,050	\$ 35,780	Moderate-term on-the-job training	377	14	General Office Occupations and Clerical Services;	0.02	potential undersupply
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	1,540	\$ 25,550	Short-term on-the-job training	110	-	NO MATCH;	-	undetermined
43-9061	Office Clerks, General	23,490	\$ 26,500	Short-term on-the-job training	3,755	14	General Office Occupations and Clerical Services;	0.00	potential undersupply
43-9071	Office Machine Operators, Except Computer	480	\$ 26,500	Short-term on-the-job training	52	-	NO MATCH;	-	undetermined
43-9081	Proofreaders and Copy Markers	230	\$ 26,040	Short-term on-the-job training	14	-	NO MATCH;	-	undetermined
43-9111	Statistical Assistants	40	\$ 40,450	-	-	106	Accounting Technology/Technician and Bookkeeping;	-	undetermined
43-9199	Office and Administrative Support Workers, All Other	1,530	\$ 28,330	-	110	-	NO MATCH;	-	undetermined

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Farming, Fishing, and Forestry Occupations									
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	190	\$ 48,050	Work experience in a related occupation	50	704	Farm/Farm and Ranch Management; Agricultural Business and Management, Other; Agricultural Production Operations, General; Animal/Livestock Husbandry and Production; Aquaculture; Crop Production; Dairy Husbandry and Production; Horse Husbandry/Equine Science and Management; Agroecology and Sustainable Agriculture; Viticulture and Enology; Agricultural Production Operations, Other; Agricultural and Food Products Processing; Animal Sciences, General; Dairy Science; Livestock Management; Poultry Science; Animal Sciences, Other; Plant Sciences, General; Agronomy and Crop Science; Fishing and Fisheries Sciences and Management; Forest Resources Production and Management;	9.71	not aligned
45-2011	Agricultural Inspectors	280	\$ 41,610	Work experience in a related occupation	15	84	Agricultural and Food Products Processing;	4.27	not aligned
45-2021	Animal Breeders	-	\$ -	-	-	57	Animal/Livestock Husbandry and Production; Horse Husbandry/Equine Science and Management;	-	undetermined
45-2041	Graders and Sorters, Agricultural Products	190	\$ 28,340	Work experience in a related occupation	14	4	Agricultural/Farm Supplies Retailing and Wholesaling;	0.22	potential undersupply
45-2091	Agricultural Equipment Operators	1,050	\$ 32,030	Short-term on-the-job training	150	-	Agricultural Power Machinery Operation;	-	undetermined
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	180	\$ 20,750	Short-term on-the-job training	346	-	NO MATCH;	-	undetermined
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	1,000	\$ 20,480	Short-term on-the-job training	220	-	NO MATCH;	-	undetermined
45-2099	Agricultural Workers, All Other	-	\$ -	-	-	-	NO MATCH;	-	undetermined
45-3011	Fishers and Related Fishing Workers	-	\$ -	-	-	-	Fishing and Fisheries Sciences and Management;	-	undetermined
45-3021	Hunters and Trappers	-	\$ -	-	-	-	NO MATCH;	-	undetermined
45-4011	Forest and Conservation Workers	-	\$ 27,130	-	-	6	NO MATCH;	-	undetermined
45-4021	Fallers	-	\$ -	-	-	-	NO MATCH;	-	undetermined
45-4022	Logging Equipment Operators	-	\$ -	-	-	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	-	undetermined
45-4023	Log Graders and Scalars	-	\$ -	-	-	-	NO MATCH;	-	undetermined
45-4029	Logging Workers, All Other	-	\$ -	-	-	-	NO MATCH;	-	undetermined

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Construction and Extraction Occupations									
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	5,310	\$ 58,210	Work experience in a related occupation	449	483	Construction Trades, General; Mason/Masonry; Carpentry/Carpenter; Electrician; Building/Property Maintenance; Concrete Finishing/Concrete Finisher; Building/Home/Construction Inspection/Inspector; Drywall Installation/Drywall; Glazier; Painting/Painter and Wall Coverer; Roofer; Building/Construction Site Management/Manager; Carpet, Floor, and Tile Worker; Insulator; Building Construction Technology; Pipefitting/Pipefitter and Sprinkler Fitter; Plumbing Technology/Plumber; Well Drilling/Driller; Blasting/Blaster;	0.90	aligned
47-2011	Boilermakers	-	\$ -	Long-term on-the-job training	6	-	Boilermaking/Boilermaker;	-	undetermined
47-2021	Brickmasons and Blockmasons	590	\$ 50,520	Long-term on-the-job training	58	12	Mason/Masonry;	0.14	potential undersupply
47-2022	Stonemasons	120	\$ 34,080	Long-term on-the-job training	16	12	Mason/Masonry;	0.50	potential undersupply
47-2031	Carpenters	5,350	\$ 40,170	Long-term on-the-job training	609	186	Carpentry/Carpenter;	0.31	potential undersupply
47-2041	Carpet Installers	290	\$ 38,080	Moderate-term on-the-job training	30	-	Carpet, Floor, and Tile Worker;	-	undetermined
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	70	\$ 38,420	Moderate-term on-the-job training	50	-	Carpet, Floor, and Tile Worker;	-	undetermined
47-2043	Floor Sanders and Finishers	50	\$ 39,080	Moderate-term on-the-job training	8	-	Carpet, Floor, and Tile Worker;	-	undetermined
47-2044	Tile and Marble Setters	150	\$ 43,540	Long-term on-the-job training	20	12	Mason/Masonry; Carpet, Floor, and Tile Worker;	0.40	potential undersupply
47-2051	Cement Masons and Concrete Finishers	1,850	\$ 36,140	Moderate-term on-the-job training	352	-	Concrete Finishing/Concrete Finisher;	-	undetermined
47-2053	Terrazzo Workers and Finishers	-	\$ -	-	-	-	Carpet, Floor, and Tile Worker;	-	undetermined
47-2061	Construction Laborers	8,540	\$ 29,920	Moderate-term on-the-job training	1,377	-	NO MATCH;	-	undetermined
47-2071	Paving, Surfacing, and Tamping Equipment Operators	1,150	\$ 35,260	Moderate-term on-the-job training	59	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	0.65	potential undersupply
47-2072	Pile-Driver Operators	-	\$ -	Moderate-term on-the-job training	-	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	-	undetermined
47-2073	Operating Engineers and Other Construction Equipment Operators	6,410	\$ 35,340	Moderate-term on-the-job training	343	91	Construction/Heavy Equipment/Earthmoving Equipment Operation; Mobil Crane Operation/Operator;	0.11	potential undersupply
47-2081	Drywall and Ceiling Tile Installers	760	\$ 38,090	Moderate-term on-the-job training	44	-	Drywall Installation/Drywall;	-	undetermined
47-2082	Tapers	180	\$ 47,250	Moderate-term on-the-job training	12	-	NO MATCH;	-	undetermined
47-2111	Electricians	5,090	\$ 47,180	Long-term on-the-job training	1,197	190	Electrician;	0.11	potential undersupply
47-2121	Glaziers	360	\$ 36,710	Long-term on-the-job training	64	-	Glazier;	-	undetermined
47-2131	Insulation Workers, Floor, Ceiling, and Wall	260	\$ 33,390	Moderate-term on-the-job training	24	-	Insulator;	-	undetermined
47-2132	Insulation Workers, Mechanical	240	\$ 45,020	Moderate-term on-the-job training	40	-	Insulator;	-	undetermined
47-2141	Painters, Construction and Maintenance	1,590	\$ 35,240	Moderate-term on-the-job training	338	-	Painting/Painter and Wall Coverer;	-	undetermined
47-2142	Paperhangers	-	\$ -	-	45	-	Painting/Painter and Wall Coverer;	-	undetermined
47-2151	Pipelayers	210	\$ 36,550	Short-term on-the-job training	26	-	NO MATCH;	-	undetermined
47-2152	Plumbers, Pipefitters, and Steamfitters	4,040	\$ 48,550	Long-term on-the-job training	429	-	Pipefitting/Pipefitter and Sprinkler Fitter; Plumbing Technology/Plumber; Plumbing and Related Water Supply Services, Other;	-	undetermined
47-2161	Plasterers and Stucco Masons	230	\$ 35,080	Long-term on-the-job training	16	-	NO MATCH;	-	undetermined
47-2171	Reinforcing Iron and Rebar Workers	50	\$ 43,020	-	-	-	NO MATCH;	-	undetermined
47-2181	Roofers	1,120	\$ 35,620	Moderate-term on-the-job training	46	-	Roofer;	-	undetermined

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47-2211	Sheet Metal Workers	3,190	\$ 41,110	Long-term on-the-job training	217	1	Sheet Metal Technology/Sheetworking;	0.00	potential undersupply
47-2221	Structural Iron and Steel Workers	630	\$ 49,670	Long-term on-the-job training	40	-	Metal Building Assembly/Assembler;	-	undetermined
47-2231	Solar Photovoltaic Installers	-	\$ -	-	-	-	Solar Energy Technology/Technician; Roofer;	-	undetermined
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	410	\$ 27,490	Short-term on-the-job training	20	-	NO MATCH;	-	undetermined
47-3012	Helpers--Carpenters	290	\$ 24,760	Short-term on-the-job training	38	-	NO MATCH;	-	undetermined
47-3013	Helpers--Electricians	290	\$ 29,430	Short-term on-the-job training	32	-	NO MATCH;	-	undetermined
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	120	\$ 21,790	-	5	-	NO MATCH;	-	undetermined
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	480	\$ 27,140	Short-term on-the-job training	48	-	NO MATCH;	-	undetermined
47-3016	Helpers--Roofers	180	\$ 22,410	Short-term on-the-job training	12	-	NO MATCH;	-	undetermined
47-3019	Helpers, Construction Trades, All Other	160	\$ 24,940	-	100	-	NO MATCH;	-	undetermined
47-4011	Construction and Building Inspectors	1,030	\$ 52,230	Work experience in a related occupation	67	-	Building/Home/Construction Inspection/Inspector;	-	undetermined
47-4021	Elevator Installers and Repairers	170	\$ 69,700	Long-term on-the-job training	10	27	Industrial Mechanics and Maintenance Technology;	1.50	aligned
47-4031	Fence Erectors	310	\$ 28,850	Moderate-term on-the-job training	12	-	NO MATCH;	-	undetermined
47-4041	Hazardous Materials Removal Workers	280	\$ 36,640	Moderate-term on-the-job training	28	14	Hazardous Materials Management and Waste Technology/Technician;	0.83	aligned
47-4051	Highway Maintenance Workers	1,600	\$ 29,510	Moderate-term on-the-job training	118	91	Construction/Heavy Equipment/Earthmoving Equipment Operation; Flagging and Traffic Control;	0.33	potential undersupply
47-4061	Rail-Track Laying and Maintenance Equipment Operators	230	\$ 42,190	Moderate-term on-the-job training	85	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	0.45	potential undersupply
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	170	\$ 38,150	Moderate-term on-the-job training	63	-	Plumbing Technology/Plumber;	-	undetermined
47-4091	Segmental Pavers	-	\$ -	Moderate-term on-the-job training	-	-	NO MATCH;	-	undetermined
47-4099	Construction and Related Workers, All Other	210	\$ 30,160	Moderate-term on-the-job training	26	-	NO MATCH;	-	undetermined
47-5011	Derrick Operators, Oil and Gas	240	\$ 40,060	Moderate-term on-the-job training	12	-	Well Drilling/Driller;	-	undetermined
47-5012	Rotary Drill Operators, Oil and Gas	420	\$ 36,050	Moderate-term on-the-job training	12	-	Well Drilling/Driller;	-	undetermined
47-5013	Service Unit Operators, Oil, Gas, and Mining	1,250	\$ 38,930	Moderate-term on-the-job training	45	-	Mining Technology/Technician;	-	undetermined
47-5021	Earth Drillers, Except Oil and Gas	170	\$ 37,580	Moderate-term on-the-job training	6	91	Well Drilling/Driller; Construction/Heavy Equipment/Earthmoving Equipment Operation;	6.40	not aligned
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	-	\$ -	-	-	-	Blasting/Blaster;	-	undetermined
47-5041	Continuous Mining Machine Operators	-	\$ -	-	-	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	-	undetermined
47-5042	Mine Cutting and Channeling Machine Operators	-	\$ -	-	-	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	-	undetermined
47-5049	Mining Machine Operators, All Other	-	\$ -	-	-	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	-	undetermined
47-5051	Rock Splitters, Quarry	-	\$ -	-	-	-	NO MATCH;	-	undetermined
47-5061	Roof Bolters, Mining	-	\$ -	-	-	-	NO MATCH;	-	undetermined
47-5071	Roustabouts, Oil and Gas	1,160	\$ 32,970	Moderate-term on-the-job training	87	-	NO MATCH;	-	undetermined
47-5081	Helpers--Extraction Workers	290	\$ 31,940	Short-term on-the-job training	10	-	NO MATCH;	-	undetermined
47-5099	Extraction Workers, All Other	-	\$ 39,940	Moderate-term on-the-job training	4	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	9.61	not aligned

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Installation, Maintenance, and Repair Occupations									
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	5,090	\$ 57,430	Work experience in a related occupation	1,333	106	Electrical and Power Transmission Installation/Installer, General; Lineworker; Vehicle Maintenance and Repair Technologies, General; High Performance and Custom Engine Technician/Mechanic; Recreation Vehicle (RV) Service Technician; Operations Management and Supervision;	0.08	potential undersupply
49-2011	Computer, Automated Teller, and Office Machine Repairers	1,250	\$ 37,400	Postsecondary vocational training	75	15	Business Machine Repair; Computer Installation and Repair Technology/Technician;	0.20	potential undersupply
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairs	70	\$ 40,160	Postsecondary vocational training	2	18	Communications Systems Installation and Repair Technology;	5.40	not aligned
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	2,080	\$ 49,160	Postsecondary vocational training	387	18	Communications Systems Installation and Repair Technology;	0.03	potential undersupply
49-2091	Avionics Technicians	760	\$ 60,800	Postsecondary vocational training	55	33	Avionics Maintenance Technology/Technician;	0.60	potential undersupply
49-2092	Electric Motor, Power Tool, and Related Repairers	210	\$ 29,520	Postsecondary vocational training	4	62	Electrical/Electronics Equipment Installation and Repair, General;	15.50	not aligned
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	230	\$ 44,460	Postsecondary vocational training	2	543	Automobile/Automotive Mechanics Technology/Technician;	211.17	not aligned
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	580	\$ 48,170	Postsecondary vocational training	38	21	Computer Installation and Repair Technology/Technician; Industrial Electronics Technology/Technician;	0.55	potential undersupply
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	180	\$ 66,030	Postsecondary vocational training	10	-	NO MATCH;	-	undetermined
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	140	\$ 33,190	Postsecondary vocational training	20	543	Automobile/Automotive Mechanics Technology/Technician;	20.69	not aligned
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	360	\$ 35,750	Postsecondary vocational training	30	18	Communications Systems Installation and Repair Technology;	0.37	potential undersupply
49-2098	Security and Fire Alarm Systems Installers	350	\$ 40,470	Postsecondary vocational training	40	190	Electrician; Security System Installation, Repair, and Inspection Technology/Technician;	3.17	not aligned
49-3011	Aircraft Mechanics and Service Technicians	2,560	\$ 54,670	Postsecondary vocational training	163	489	Agricultural Mechanics and Equipment/Machine Technology; Airframe Mechanics and Aircraft Maintenance Technology/Technician; Aircraft Powerplant Technology/Technician;	2.86	not aligned
49-3021	Automotive Body and Related Repairers	1,380	\$ 39,570	Long-term on-the-job training	140	270	Autobody/Collision and Repair Technology/Technician;	1.28	aligned
49-3022	Automotive Glass Installers and Repairers	80	\$ 32,250	Long-term on-the-job training	50	270	Autobody/Collision and Repair Technology/Technician;	3.57	not aligned
49-3023	Automotive Service Technicians and Mechanics	5,990	\$ 36,920	Postsecondary vocational training	2,315	627	Automotive Engineering Technology/Technician; Vehicle Maintenance and Repair Technologies, General; Automobile/Automotive Mechanics Technology/Technician; Vehicle Emissions Inspection and Maintenance Technology/Technician; Medium/Heavy Vehicle and Truck Technology/Technician; Alternative Fuel Vehicle Technology/Technician; High Performance and Custom Engine Technician/Mechanic;	0.24	potential undersupply
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	2,630	\$ 40,310	Postsecondary vocational training	1,557	181	Diesel Mechanics Technology/Technician; Medium/Heavy Vehicle and Truck Technology/Technician;	0.19	potential undersupply
49-3041	Farm Equipment Mechanics and Service Technicians	1,140	\$ 35,870	Long-term on-the-job training	99	135	Agricultural Mechanization, General; Agricultural Power Machinery Operation; Agricultural Mechanics and Equipment/Machine Technology; Agricultural Mechanization, Other;	1.14	aligned
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	1,220	\$ 42,610	Long-term on-the-job training	188	99	Agricultural Mechanics and Equipment/Machine Technology; Heavy Equipment Maintenance Technology/Technician;	0.41	potential undersupply
49-3043	Rail Car Repairers	270	\$ 41,110	-	-	-	Heavy Equipment Maintenance Technology/Technician;	-	undetermined
49-3051	Motorboat Mechanics and Service Technicians	50	\$ 33,540	Long-term on-the-job training	6	-	Small Engine Mechanics and Repair Technology/Technician; Marine Maintenance/Fitter and Ship Repair Technology/Technician;	-	undetermined
49-3052	Motorcycle Mechanics	140	\$ 30,560	Long-term on-the-job training	10	27	Motorcycle Maintenance and Repair Technology/Technician;	4.50	not aligned
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	200	\$ 29,530	Moderate-term on-the-job training	18	-	Small Engine Mechanics and Repair Technology/Technician;	-	undetermined
49-3091	Bicycle Repairers	-	\$ 27,530	-	-	-	Bicycle Mechanics and Repair Technology/Technician;	-	undetermined
49-3092	Recreational Vehicle Service Technicians	-	\$ 36,330	Long-term on-the-job training	10	-	Recreation Vehicle (RV) Service Technician;	-	undetermined
49-3093	Tire Repairers and Changers	1,070	\$ 24,840	Short-term on-the-job training	226	-	NO MATCH;	-	undetermined

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49-9011	Mechanical Door Repairers	80	\$ 29,490	Moderate-term on-the-job training	4	-	NO MATCH;	-	undetermined
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	470	\$ 49,130	Moderate-term on-the-job training	14	-	NO MATCH;	-	undetermined
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	2,480	\$ 43,430	Postsecondary vocational training	995	307	Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology/Technician; Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician;	0.51	potential undersupply
49-9031	Home Appliance Repairers	240	\$ 32,670	Long-term on-the-job training	23	15	Appliance Installation and Repair Technology/Technician;	1.08	aligned
49-9041	Industrial Machinery Mechanics	3,450	\$ 42,720	Long-term on-the-job training	229	27	Industrial Mechanics and Maintenance Technology;	0.07	potential undersupply
49-9043	Maintenance Workers, Machinery	740	\$ 42,740	Long-term on-the-job training	58	27	Industrial Mechanics and Maintenance Technology;	0.26	potential undersupply
49-9044	Millwrights	460	\$ 52,870	Long-term on-the-job training	28	27	Industrial Mechanics and Maintenance Technology;	0.54	potential undersupply
49-9045	Refractory Materials Repairers, Except Brickmasons	-	\$ -	-	-	27	Industrial Mechanics and Maintenance Technology;	-	undetermined
49-9051	Electrical Power-Line Installers and Repairers	1,710	\$ 57,810	Long-term on-the-job training	144	105	Electrical and Power Transmission Installation/Installer, General; Lineworker; Electrical and Power Transmission Installers, Other;	0.73	aligned
49-9052	Telecommunications Line Installers and Repairers	1,730	\$ 51,060	Long-term on-the-job training	87	18	Communications Systems Installation and Repair Technology;	0.12	potential undersupply
49-9061	Camera and Photographic Equipment Repairers	50	\$ 61,100	-	560	-	NO MATCH;	-	undetermined
49-9062	Medical Equipment Repairers	260	\$ 42,770	Associate degree	36	-	Biomedical Technology/Technician;	-	undetermined
49-9063	Musical Instrument Repairers and Tuners	180	\$ 39,030	Long-term on-the-job training	4	-	Musical Instrument Fabrication and Repair;	-	undetermined
49-9064	Watch Repairers	-	\$ -	-	-	-	Watchmaking and Jewelrymaking;	-	undetermined
49-9069	Precision Instrument and Equipment Repairers, All Other	90	\$ 56,920	Moderate-term on-the-job training	8	-	Instrumentation Technology/Technician; Precision Systems Maintenance and Repair Technologies, Other;	-	undetermined
49-9071	Maintenance and Repair Workers, General	10,950	\$ 34,940	-	5,272	85	Building/Property Maintenance;	0.01	potential undersupply
49-9081	Wind Turbine Service Technicians	-	\$ -	-	-	27	Industrial Mechanics and Maintenance Technology;	-	undetermined
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	240	\$ 30,190	Moderate-term on-the-job training	26	-	NO MATCH;	-	undetermined
49-9092	Commercial Divers	-	\$ -	-	-	-	Diver, Professional and Instructor;	-	undetermined
49-9093	Fabric Menders, Except Garment	-	\$ -	-	-	-	NO MATCH;	-	undetermined
49-9094	Locksmiths and Safe Repairers	120	\$ 35,920	Moderate-term on-the-job training	8	-	Locksmithing and Safe Repair;	-	undetermined
49-9095	Manufactured Building and Mobile Home Installers	-	\$ -	Moderate-term on-the-job training	2	-	Building/Construction Site Management/Manager;	-	undetermined
49-9096	Riggers	-	\$ -	-	-	-	NO MATCH;	-	undetermined
49-9097	Signal and Track Switch Repairers	160	\$ 51,220	Moderate-term on-the-job training	4	190	Electrician;	31.67	not aligned
49-9098	Helpers--Installation, Maintenance, and Repair Workers	1,140	\$ 23,560	Short-term on-the-job training	238	-	NO MATCH;	-	undetermined
49-9099	Installation, Maintenance, and Repair Workers, All Other	1,610	\$ 36,000	Moderate-term on-the-job training	1,802	62	Electrical/Electronics Equipment Installation and Repair, General; Gunsmithing/Gunsmith; Parts and Warehousing Operations and Maintenance Technology/Technician;	0.03	potential undersupply

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Production Occupations									
51-1011	First-Line Supervisors of Production and Operating Workers	7,310	\$ 53,910	Work experience in a related occupation	2,846	1	Operations Management and Supervision;	0.00	potential undersupply
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	-	\$ -	-	3	423	Airframe Mechanics and Aircraft Maintenance Technology/Technician; Aircraft Powerplant Technology/Technician; Avionics Maintenance Technology/Technician;	160.74	not aligned
51-2021	Coil Winders, Tapers, and Finishers	-	\$ 25,250	Short-term on-the-job training	8	-	NO MATCH;	-	undetermined
51-2022	Electrical and Electronic Equipment Assemblers	1,980	\$ 30,600	Short-term on-the-job training	83	-	NO MATCH;	-	undetermined
51-2023	Electromechanical Equipment Assemblers	250	\$ 33,170	Short-term on-the-job training	6	-	NO MATCH;	-	undetermined
51-2031	Engine and Other Machine Assemblers	110	\$ 31,810	Short-term on-the-job training	72	-	Engine Machinist;	-	undetermined
51-2041	Structural Metal Fabricators and Fitters	1,800	\$ 37,920	Moderate-term on-the-job training	141	-	Machine Shop Technology/Assistant; Metal Fabricator;	-	undetermined
51-2091	Fiberglass Laminators and Fabricators	310	\$ 27,730	Moderate-term on-the-job training	21	-	NO MATCH;	-	undetermined
51-2092	Team Assemblers	11,830	\$ 30,830	Moderate-term on-the-job training	913	-	NO MATCH;	-	undetermined
51-2093	Timing Device Assemblers and Adjusters	-	\$ -	-	-	-	Watchmaking and Jewelmaking;	-	undetermined
51-2099	Assemblers and Fabricators, All Other	4,410	\$ 43,150	Moderate-term on-the-job training	1,581	-	NO MATCH;	-	undetermined
51-3011	Bakers	780	\$ 22,170	Long-term on-the-job training	117	28	Baking and Pastry Arts/Baker/Pastry Chef;	0.24	potential undersupply
51-3021	Butchers and Meat Cutters	890	\$ 30,950	Long-term on-the-job training	79	-	Meat Cutting/Meat Cutter;	-	undetermined
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	5,480	\$ 26,130	Short-term on-the-job training	442	-	NO MATCH;	-	undetermined
51-3023	Slaughterers and Meat Packers	2,660	\$ 25,510	Moderate-term on-the-job training	605	-	Meat Cutting/Meat Cutter;	-	undetermined
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	70	\$ 30,000	Short-term on-the-job training	10	-	NO MATCH;	-	undetermined
51-3092	Food Batchmakers	860	\$ 27,460	Short-term on-the-job training	78	-	NO MATCH;	-	undetermined
51-3093	Food Cooking Machine Operators and Tenders	520	\$ 25,010	Short-term on-the-job training	16	-	NO MATCH;	-	undetermined
51-3099	Food Processing Workers, All Other	-	\$ -	-	8	-	NO MATCH;	-	undetermined
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	1,990	\$ 33,370	Moderate-term on-the-job training	1,204	-	Machine Shop Technology/Assistant; Computer Numerically Controlled (CNC) Machinist Technology/CNC Machinist;	-	undetermined
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	380	\$ 54,430	Work experience in a related occupation	16	-	Computer Numerically Controlled (CNC) Machinist Technology/CNC Machinist;	-	undetermined
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	1,200	\$ 31,100	Moderate-term on-the-job training	124	119	Machine Tool Technology/Machinist;	0.42	potential undersupply
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	180	\$ 30,240	Moderate-term on-the-job training	12	119	Machine Tool Technology/Machinist;	4.32	not aligned
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	160	\$ 32,020	Moderate-term on-the-job training	4	120	Machine Tool Technology/Machinist; Sheet Metal Technology/Sheetworking;	13.12	not aligned
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	1,790	\$ 28,420	Moderate-term on-the-job training	274	120	Machine Tool Technology/Machinist; Sheet Metal Technology/Sheetworking;	0.19	potential undersupply
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	260	\$ 36,390	Moderate-term on-the-job training	22	119	Machine Tool Technology/Machinist;	2.36	not aligned
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	650	\$ 31,540	Moderate-term on-the-job training	38	119	Machine Tool Technology/Machinist; Machine Shop Technology/Assistant;	1.37	aligned
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	280	\$ 32,880	Moderate-term on-the-job training	23	119	Machine Tool Technology/Machinist;	2.30	not aligned

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51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	220	\$ 30,970	Moderate-term on-the-job training	22	119	Machine Tool Technology/Machinist;	2.36	not aligned
51-4041	Machinists	4,770	\$ 37,740	Long-term on-the-job training	284	119	Machine Tool Technology/Machinist; Machine Shop Technology/Assistant;	0.18	potential undersupply
51-4051	Metal-Refining Furnace Operators and Tenders	70	\$ 32,800	Moderate-term on-the-job training	6	-	NO MATCH;	-	undetermined
51-4052	Pourers and Casters, Metal	30	\$ 26,900	Moderate-term on-the-job training	7	-	NO MATCH;	-	undetermined
51-4061	Model Makers, Metal and Plastic	80	\$ 41,630	-	-	1	Sheet Metal Technology/Sheetworking;	-	undetermined
51-4062	Patternmakers, Metal and Plastic	80	\$ 51,020	Long-term on-the-job training	2	1	Sheet Metal Technology/Sheetworking;	0.30	potential undersupply
51-4071	Foundry Mold and Coremakers	170	\$ 31,200	Moderate-term on-the-job training	8	-	Ironworking/Ironworker;	-	undetermined
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	670	\$ 28,740	Moderate-term on-the-job training	59	-	NO MATCH;	-	undetermined
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	310	\$ 36,190	Moderate-term on-the-job training	22	119	Machine Tool Technology/Machinist; Machine Shop Technology/Assistant;	2.36	not aligned
51-4111	Tool and Die Makers	910	\$ 52,380	Long-term on-the-job training	21	-	Tool and Die Technology/Technician;	-	undetermined
51-4121	Welders, Cutters, Solderers, and Brazers	4,580	\$ 34,650	Postsecondary vocational training	1,602	463	Welding Engineering Technology/Technician; Welding Technology/Welder;	0.29	potential undersupply
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	590	\$ 33,690	Postsecondary vocational training	39	463	Welding Technology/Welder;	11.87	not aligned
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	180	\$ 31,370	Moderate-term on-the-job training	16	119	Machine Tool Technology/Machinist; Machine Shop Technology/Assistant;	3.24	not aligned
51-4192	Layout Workers, Metal and Plastic	-	\$ -	-	-	119	Machine Tool Technology/Machinist; Machine Shop Technology/Assistant;	-	undetermined
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	150	\$ 32,760	Moderate-term on-the-job training	20	-	NO MATCH;	-	undetermined
51-4194	Tool Grinders, Filers, and Sharpeners	80	\$ 38,590	Moderate-term on-the-job training	8	-	Machine Shop Technology/Assistant;	-	undetermined
51-4199	Metal Workers and Plastic Workers, All Other	50	\$ 35,380	Moderate-term on-the-job training	2	119	Machine Tool Technology/Machinist; Machine Shop Technology/Assistant; Precision Metal Working, Other;	25.94	not aligned
51-5111	Prepress Technicians and Workers	550	\$ 33,330	-	18	88	Graphic Communications, General; Printing Management; Prepress/Desktop Publishing and Digital Imaging Design; Graphic and Printing Equipment Operator, General Production; Platemaker/Imager; Printing Press Operator; Graphic Communications, Other;	4.48	not aligned
51-5112	Printing Press Operators	2,800	\$ 34,690	-	150	40	Printing Management; Graphic and Printing Equipment Operator, General Production; Printing Press Operator; Graphic Communications, Other;	0.22	potential undersupply
51-5113	Print Binding and Finishing Workers	720	\$ 26,450	-	28	-	NO MATCH;	-	undetermined
51-6011	Laundry and Dry-Cleaning Workers	2,090	\$ 19,700	Moderate-term on-the-job training	191	-	NO MATCH;	-	undetermined
51-6021	Pressers, Textile, Garment, and Related Materials	260	\$ 18,000	Short-term on-the-job training	4	-	NO MATCH;	-	undetermined
51-6031	Sewing Machine Operators	960	\$ 21,790	Moderate-term on-the-job training	135	-	NO MATCH;	-	undetermined
51-6041	Shoe and Leather Workers and Repairers	40	\$ 29,960	-	-	-	Shoe, Boot and Leather Repair;	-	undetermined
51-6042	Shoe Machine Operators and Tenders	-	\$ -	-	-	-	Shoe, Boot and Leather Repair;	-	undetermined
51-6051	Sewers, Hand	-	\$ -	-	-	-	NO MATCH;	-	undetermined
51-6052	Tailors, Dressmakers, and Custom Sewers	190	\$ 22,060	Long-term on-the-job training	28	-	NO MATCH;	-	undetermined
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	-	\$ -	-	-	-	NO MATCH;	-	undetermined
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	50	\$ 22,450	Moderate-term on-the-job training	2	-	NO MATCH;	-	undetermined
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	-	\$ -	-	-	-	NO MATCH;	-	undetermined
51-6064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	-	\$ -	-	-	-	NO MATCH;	-	undetermined
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	-	\$ 32,210	Moderate-term on-the-job training	4	-	NO MATCH;	-	undetermined

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51-6092	Fabric and Apparel Patternmakers	-	\$ -	-	-	-	Apparel and Textile Manufacture;	-	undetermined
51-6093	Upholsterers	140	\$ 31,110	Long-term on-the-job training	14	-	Upholstery/Upholsterer;	-	undetermined
51-6099	Textile, Apparel, and Furnishings Workers, All Other	40	\$ 29,550	-	5	-	NO MATCH;	-	undetermined
51-7011	Cabinetmakers and Bench Carpenters	1,090	\$ 31,000	Long-term on-the-job training	106	19	Cabinetmaking and Millwork;	0.10	potential undersupply
51-7021	Furniture Finishers	110	\$ 25,330	Long-term on-the-job training	10	-	Furniture Design and Manufacturing;	-	undetermined
51-7031	Model Makers, Wood	-	\$ -	-	-	19	Cabinetmaking and Millwork;	-	undetermined
51-7032	Patternmakers, Wood	-	\$ -	-	-	19	Cabinetmaking and Millwork;	-	undetermined
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	200	\$ 25,410	Moderate-term on-the-job training	16	19	Cabinetmaking and Millwork;	0.66	potential undersupply
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	440	\$ 24,050	Moderate-term on-the-job training	42	19	Woodworking, General; Cabinetmaking and Millwork;	0.25	potential undersupply
51-7099	Woodworkers, All Other	-	\$ -	-	-	19	Woodworking, General; Furniture Design and Manufacturing; Cabinetmaking and Millwork; Woodworking, Other;	-	undetermined
51-8011	Nuclear Power Reactor Operators	-	\$ -	-	-	-	Nuclear/Nuclear Power Technology/Technician;	-	undetermined
51-8012	Power Distributors and Dispatchers	60	\$ 66,670	Long-term on-the-job training	4	-	NO MATCH;	-	undetermined
51-8013	Power Plant Operators	750	\$ 54,760	Long-term on-the-job training	66	-	NO MATCH;	-	undetermined
51-8021	Stationary Engineers and Boiler Operators	100	\$ 59,570	Long-term on-the-job training	4	-	NO MATCH;	-	undetermined
51-8031	Water and Wastewater Treatment Plant and System Operators	1,220	\$ 35,000	Long-term on-the-job training	127	61	Water Quality and Wastewater Treatment Management and Recycling Technology/Technician;	0.80	aligned
51-8091	Chemical Plant and System Operators	250	\$ 61,230	Long-term on-the-job training	24	-	Chemical Technology/Technician; Chemical Process Technology;	-	undetermined
51-8092	Gas Plant Operators	-	\$ -	Long-term on-the-job training	6	-	NO MATCH;	-	undetermined
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	910	\$ 55,470	Long-term on-the-job training	103	-	NO MATCH;	-	undetermined
51-8099	Plant and System Operators, All Other	60	\$ 40,870	Long-term on-the-job training	9	-	NO MATCH;	-	undetermined
51-9011	Chemical Equipment Operators and Tenders	290	\$ 48,240	Moderate-term on-the-job training	20	-	Chemical Technology/Technician; Chemical Process Technology;	-	undetermined
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	210	\$ 31,300	Moderate-term on-the-job training	8	-	NO MATCH;	-	undetermined
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	320	\$ 27,500	Moderate-term on-the-job training	13	-	NO MATCH;	-	undetermined
51-9022	Grinding and Polishing Workers, Hand	660	\$ 25,320	Moderate-term on-the-job training	32	-	NO MATCH;	-	undetermined
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	1,640	\$ 32,920	Moderate-term on-the-job training	132	-	NO MATCH;	-	undetermined
51-9031	Cutters and Trimmers, Hand	390	\$ 24,930	Short-term on-the-job training	34	-	NO MATCH;	-	undetermined
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	770	\$ 26,190	Moderate-term on-the-job training	58	-	NO MATCH;	-	undetermined
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	640	\$ 30,410	Moderate-term on-the-job training	112	-	NO MATCH;	-	undetermined
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	180	\$ 29,410	Moderate-term on-the-job training	4	-	NO MATCH;	-	undetermined
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	4,690	\$ 38,650	Moderate-term on-the-job training	1,841	-	Quality Control Technology/Technician;	-	undetermined
51-9071	Jewelers and Precious Stone and Metal Workers	190	\$ 35,210	Postsecondary vocational training	54	-	Watchmaking and Jewelmaking; Metal and Jewelry Arts; Dental Laboratory Technology/Technician;	-	undetermined
51-9082	Medical Appliance Technicians	40	\$ 45,860	-	-	-	Orthotist/Prosthetist; Assistive/Augmentative Technology and Rehabilitation Engineering;	-	undetermined
51-9083	Ophthalmic Laboratory Technicians	150	\$ 26,220	Moderate-term on-the-job training	14	-	Ophthalmic Laboratory Technology/Technician;	-	undetermined

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51-9111	Packaging and Filling Machine Operators and Tenders	4,370	\$ 29,140	Short-term on-the-job training	198	-	NO MATCH;	-	undetermined
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	1,290	\$ 28,910	Moderate-term on-the-job training	126	-	NO MATCH;	-	undetermined
51-9122	Painters, Transportation Equipment	370	\$ 46,040	Moderate-term on-the-job training	46	270	Autobody/Collision and Repair Technology/Technician;	3.91	not aligned
51-9123	Painting, Coating, and Decorating Workers	200	\$ 25,380	Short-term on-the-job training	68	-	NO MATCH;	-	undetermined
51-9141	Semiconductor Processors	-	\$ -	-	-	6	Semiconductor Manufacturing Technology; Industrial Electronics Technology/Technician;	-	undetermined
51-9151	Photographic Process Workers and Processing Machine Operators	330	\$ 24,180	-	29	-	NO MATCH;	-	undetermined
51-9191	Adhesive Bonding Machine Operators and Tenders	180	\$ 28,880	Moderate-term on-the-job training	14	-	NO MATCH;	-	undetermined
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	110	\$ 28,820	Moderate-term on-the-job training	2	-	NO MATCH;	-	undetermined
51-9193	Cooling and Freezing Equipment Operators and Tenders	-	\$ 24,540	-	-	-	NO MATCH;	-	undetermined
51-9194	Etchers and Engravers	70	\$ 26,650	Long-term on-the-job training	2	-	Graphic Communications, Other;	-	undetermined
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	460	\$ 25,800	Moderate-term on-the-job training	84	-	NO MATCH;	-	undetermined
51-9196	Paper Goods Machine Setters, Operators, and Tenders	1,110	\$ 35,620	Moderate-term on-the-job training	64	-	NO MATCH;	-	undetermined
51-9197	Tire Builders	-	\$ -	-	12	-	NO MATCH;	-	undetermined
51-9198	Helpers--Production Workers	5,560	\$ 23,900	Short-term on-the-job training	203	-	NO MATCH;	-	undetermined
51-9199	Production Workers, All Other	2,270	\$ 30,500	Moderate-term on-the-job training	1,808	-	NO MATCH;	-	undetermined

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Transportation and Material Moving Occupations									
53-1011	Aircraft Cargo Handling Supervisors	-	\$ -	-	-	-	NO MATCH;	-	undetermined
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	1,660	\$ 43,430	-	224	-	NO MATCH;	-	undetermined
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	2,410	\$ 54,520	Work experience in a related occupation	128	203	Railroad and Railway Transportation;	0.80	aligned
53-2011	Airline Pilots, Copilots, and Flight Engineers	50	\$ 84,710	-	-	45	Airline/Commercial/Professional Pilot and Flight Crew; Flight Instructor;	-	undetermined
53-2012	Commercial Pilots	360	\$ 75,640	Postsecondary vocational training	46	45	Airline/Commercial/Professional Pilot and Flight Crew; Flight Instructor;	0.98	aligned
53-2021	Air Traffic Controllers	480	\$ 119,840	Long-term on-the-job training	40	1	Air Traffic Controller;	0.03	potential undersupply
53-2022	Airfield Operations Specialists	40	\$ 53,360	-	-	1	Air Traffic Controller;	-	undetermined
53-2031	Flight Attendants	-	\$ -	-	-	-	Airline Flight Attendant;	-	undetermined
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	40	\$ 20,530	-	-	802	Emergency Care Attendant (EMT Ambulance);	-	undetermined
53-3021	Bus Drivers, Transit and Intercity	610	\$ 26,190	Moderate-term on-the-job training	19	444	Truck and Bus Driver/Commercial Vehicle Operator and Instructor;	13.73	not aligned
53-3022	Bus Drivers, School or Special Client	6,810	\$ 25,210	Moderate-term on-the-job training	673	444	Truck and Bus Driver/Commercial Vehicle Operator and Instructor;	0.40	potential undersupply
53-3031	Driver/Sales Workers	4,370	\$ 28,200	Short-term on-the-job training	1,759	-	NO MATCH;	-	undetermined
53-3032	Heavy and Tractor-Trailer Truck Drivers	20,200	\$ 39,040	Short-term on-the-job training	9,175	444	Truck and Bus Driver/Commercial Vehicle Operator and Instructor;	0.03	potential undersupply
53-3033	Light Truck or Delivery Services Drivers	8,050	\$ 32,200	Short-term on-the-job training	3,573	444	Truck and Bus Driver/Commercial Vehicle Operator and Instructor;	0.07	potential undersupply
53-3041	Taxi Drivers and Chauffeurs	1,120	\$ 21,470	Short-term on-the-job training	210	-	NO MATCH;	-	undetermined
53-3099	Motor Vehicle Operators, All Other	630	\$ 25,760	Short-term on-the-job training	41	-	NO MATCH;	-	undetermined
53-4011	Locomotive Engineers	1,070	\$ 51,490	Moderate-term on-the-job training	60	203	Railroad and Railway Transportation;	1.69	aligned
53-4012	Locomotive Firers	-	\$ -	-	-	203	Railroad and Railway Transportation;	-	undetermined
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	-	\$ -	-	-	203	Railroad and Railway Transportation;	-	undetermined
53-4021	Railroad Brake, Signal, and Switch Operators	480	\$ 49,510	-	-	203	Railroad and Railway Transportation;	-	undetermined
53-4031	Railroad Conductors and Yardmasters	890	\$ 51,580	Moderate-term on-the-job training	54	203	Railroad and Railway Transportation;	1.88	aligned
53-4041	Subway and Streetcar Operators	-	\$ -	-	-	203	Railroad and Railway Transportation;	-	undetermined
53-4099	Rail Transportation Workers, All Other	-	\$ -	-	-	203	Railroad and Railway Transportation;	-	undetermined
53-5011	Sailors and Marine Oilers	-	\$ -	-	-	-	NO MATCH;	-	undetermined
53-5021	Captains, Mates, and Pilots of Water Vessels	-	\$ -	-	-	-	Commercial Fishing; Marine Science/Merchant Marine Officer;	-	undetermined
53-5022	Motorboat Operators	-	\$ -	-	-	-	NO MATCH;	-	undetermined
53-5031	Ship Engineers	-	\$ -	-	-	-	Marine Science/Merchant Marine Officer;	-	undetermined
53-6011	Bridge and Lock Tenders	-	\$ -	-	-	-	NO MATCH;	-	undetermined
53-6021	Parking Lot Attendants	220	\$ 21,940	Short-term on-the-job training	10	-	NO MATCH;	-	undetermined
53-6031	Automotive and Watercraft Service Attendants	1,060	\$ 21,480	Short-term on-the-job training	366	-	NO MATCH;	-	undetermined
53-6041	Traffic Technicians	60	\$ 37,630	-	13	-	NO MATCH;	-	undetermined
53-6051	Transportation Inspectors	360	\$ 66,740	Work experience in a related occupation	24	-	NO MATCH;	-	undetermined
53-6061	Transportation Attendants, Except Flight Attendants	530	\$ 22,190	-	-	-	NO MATCH;	-	undetermined
53-6099	Transportation Workers, All Other	150	\$ 30,710	Short-term on-the-job training	26	-	NO MATCH;	-	undetermined
53-7011	Conveyor Operators and Tenders	770	\$ 28,130	Short-term on-the-job training	226	-	NO MATCH;	-	undetermined
53-7021	Crane and Tower Operators	370	\$ 45,400	Long-term on-the-job training	16	91	Construction/Heavy Equipment/Earthmoving Equipment Operation; Mobil Crane Operation/Operator;	2.40	not aligned

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53-7031	Dredge Operators	40	\$ 31,110	-	-	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	-	undetermined
53-7032	Excavating and Loading Machine and Dragline Operators	740	\$ 35,700	Moderate-term on-the-job training	52			0.74	aligned
53-7033	Loading Machine Operators, Underground Mining	-	\$ -	-	3	-	NO MATCH;	-	undetermined
53-7041	Hoist and Winch Operators	-	\$ -	-	-	91	Construction/Heavy Equipment/Earthmoving Equipment Operation;	-	undetermined
53-7051	Industrial Truck and Tractor Operators	5,870	\$ 30,760	Short-term on-the-job training	682	-	NO MATCH;	-	undetermined
53-7061	Cleaners of Vehicles and Equipment	2,920	\$ 21,810	Short-term on-the-job training	417	-	NO MATCH;	-	undetermined
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	19,900	\$ 25,440	Short-term on-the-job training	6,093	-	NO MATCH;	-	undetermined
53-7063	Machine Feeders and Offbearers	990	\$ 30,750	Short-term on-the-job training	20	-	NO MATCH;	-	undetermined
53-7064	Packers and Packers, Hand	7,020	\$ 22,340	Short-term on-the-job training	571	-	NO MATCH;	-	undetermined
53-7071	Gas Compressor and Gas Pumping Station Operators	-	\$ -	-	-	-	NO MATCH;	-	undetermined
53-7072	Pump Operators, Except Wellhead Pumps	530	\$ 37,440	-	3	-	NO MATCH;	-	undetermined
53-7073	Wellhead Pumps	590	\$ 39,760	Moderate-term on-the-job training	32	-	NO MATCH;	-	undetermined
53-7081	Refuse and Recyclable Material Collectors	1,680	\$ 26,640	Short-term on-the-job training	192	-	NO MATCH;	-	undetermined
53-7111	Mine Shuttle Car Operators	-	\$ -	-	-	-	NO MATCH;	-	undetermined
53-7121	Tank Car, Truck, and Ship Loaders	-	\$ 41,780	-	-	-	NO MATCH;	-	undetermined
53-7199	Material Moving Workers, All Other	70	\$ 25,260	Moderate-term on-the-job training	2	-	NO MATCH;	-	undetermined