

GREATER DUBUQUE REGIONAL SKILLS GAP ANALYSIS

FALL 2017

Presented by



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INTRODUCTION

BACKGROUND

In 2014, Greater Dubuque Development Corporation contracted with Smart Solutions to develop a regional Skills Gap Analysis to identify both skill and training deficiencies in the local economy. The purpose of the Skills Gap Analysis is to provide economic developers, workforce developers, and educators with information on projected workforce shortages (gaps) and to identify strategies to mitigate these shortages.

In 2015, Northeast Iowa Community College (**NICC**) obtained access to EMSI Analyst through a statewide grant awarded to Iowa's community colleges through the Department of Labor. The College partnered with Greater Dubuque Development Corporation on the implementation of EMSI Analyst and the development of Skills Gap Analysis reports since 2015.

EMSI is a leading provider of historical databases of economic, industry, occupation, demographic, and education completion data. EMSI's primary data sources for this skills gap analysis are the Bureau of Labor Statistics and the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS). This report utilizes EMSI and IPEDS data as primary sources, based on EMSI's 2017 3rd quarter data release.

REGION

This analysis contains data for seven counties:

- Clayton, IA
- Delaware, IA
- Dubuque, IA
- Jackson, IA
- Jones, IA
- Jo Daviess, IL
- Grant, WI

The analysis also covers the Dubuque Metropolitan Statistical Area (MSA), defined by the Office of Management and Budget as, "urban areas in the United States centered on an urban cluster with a population of 50,000 or more." Dubuque's MSA is the same as Dubuque County.



DEFINITIONS

This report provides the following information:

- **Higher Education Institutions:** Capri College (Dubuque), Carlson College of Massage, Clarke University, Divine Word College, Emmaus Bible College, Loras College, Northeast Iowa Community College (Peosta/Dubuque), Southwest Wisconsin Technical College, University of Dubuque, University of WI-Platteville
- **Openings** is defined as the estimated employment change and turnover for an occupation for a given year.
- **Change** is defined as the net increase/decrease in regional jobs in an occupation over the selected timeframe.

COMPARABILITY

The 2017 Skills Gap report methodology has changed, and therefore, the Occupational Outlook section is not comparable to previous reports.

Methodology was updated for the following reasons:

- The Bureau of Labor Statistics updated how replacement jobs (or separations) are calculated by occupation. This update reflects the fact that many workers today do not follow a linear career pattern. They are more likely to change careers than in the past. Therefore, the previous methodology was found to under-count turnover from workers leaving an occupation. By contrast, the new methodology now captures two types of separations:



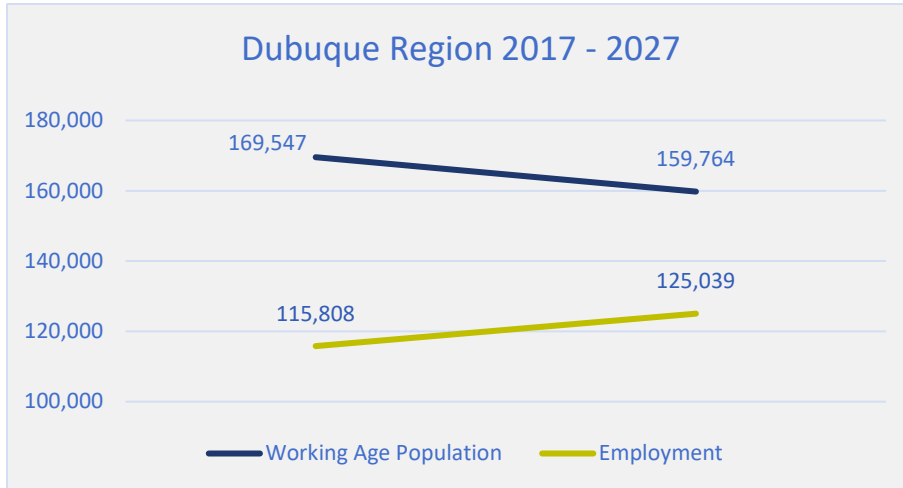
workers who leave the workforce entirely (i.e. retired or chose to stay at home), and

workers who transfer to a different major occupation group. Under this new approach, the number of replacement jobs and openings is 3-5 times higher in many occupations (and 10-20 times higher in those occupations that experience high turnover).

Note: This does not include turnover from one opening in the same occupation to another (for example, a nurse who takes another nursing job, is not counted as an opening in nursing). Thus, this measure is still considered a "conservative" estimate of openings.

This report also eliminated calculating a "skills gap" value per occupation. This changed because the calculation rested on the assumption that a student gaining a skill in a particular field was going to fill an opening in that field. This worked better for jobs such as "nurse," which you could assume would be filled by a nursing graduate. However, it did not work well for many jobs filled by a variety of graduate backgrounds, i.e. financial services, insurance services, and customer services representatives. This report still shows annual openings projected and annual completions, but does not assume that those completers will work in that field to fill the gap.

LABOR MARKET OVERVIEW

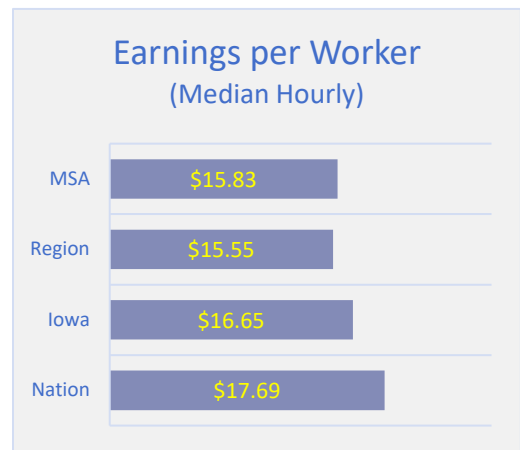
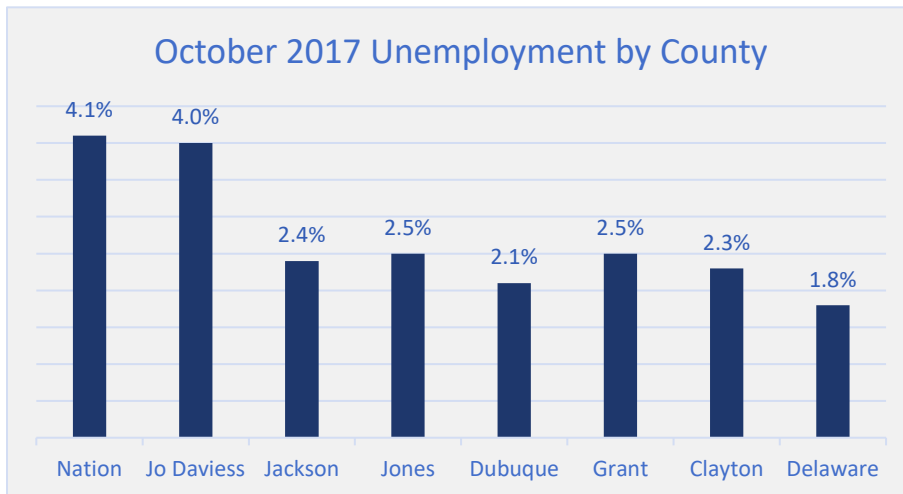


Employment Growth

| Region | 2007-2017 | 2017-2027 |
|----------------|-----------|-----------|
| Dubuque MSA | 10.5% | 9.8% |
| Dubuque Region | 6.0% | 8.0% |
| Iowa | 5.4% | 7.2% |
| Nation | 6.8% | 8.9% |

Working Age Population

| Region | 2007-2017 | 2017-2027 |
|----------------|-----------|-----------|
| Dubuque MSA | 3.0% | -3.7% |
| Dubuque Region | 1.5% | -5.8% |
| Iowa | 2.0% | -2.6% |
| Nation | 7.1% | -0.6% |



- Employment in the Dubuque MSA is projected to grow **9.8%**, a rate slightly above the projections for the region (**8.0%**), State of Iowa (**7.2%**) and the Nation (**8.9%**) from 2017-2027.
- While the working age population (age 15 to 69) is projected to remain relatively flat nationally (**-0.6%**), greater declines are projected in Iowa (**-2.6%**), the Dubuque MSA (**-3.7%**), and the region (**-5.8%**).
- The region's unemployment rate remains low and below the national unemployment rate.
- The Dubuque MSA's median hourly earnings per worker of \$15.83 is **8.9%** less than the National median.
- Of the 8 MSAs in the region, Dubuque's median wage **3rd** lowest:
 Rochester \$20.18 Cedar Rapids \$18.44 Iowa City \$17.67 Davenport \$16.70 Waterloo \$16.19 Dubuque \$15.83
 LaCrosse \$15.81 Platteville \$15.37

Notes:

- Median Hourly Earnings Per Worker: The hourly earnings, excluding benefits, of a worker in that group. In the occupational report, it represents the midpoint of the wage distribution for an occupation: half of the workers make more, half of them make less. Wage levels exclude self-employed.

Source: EMSI, Inc. (EMSI Proprietary estimates will likely vary from other state and federal estimates.)

REGIONAL INDUSTRY EARNING CHANGE

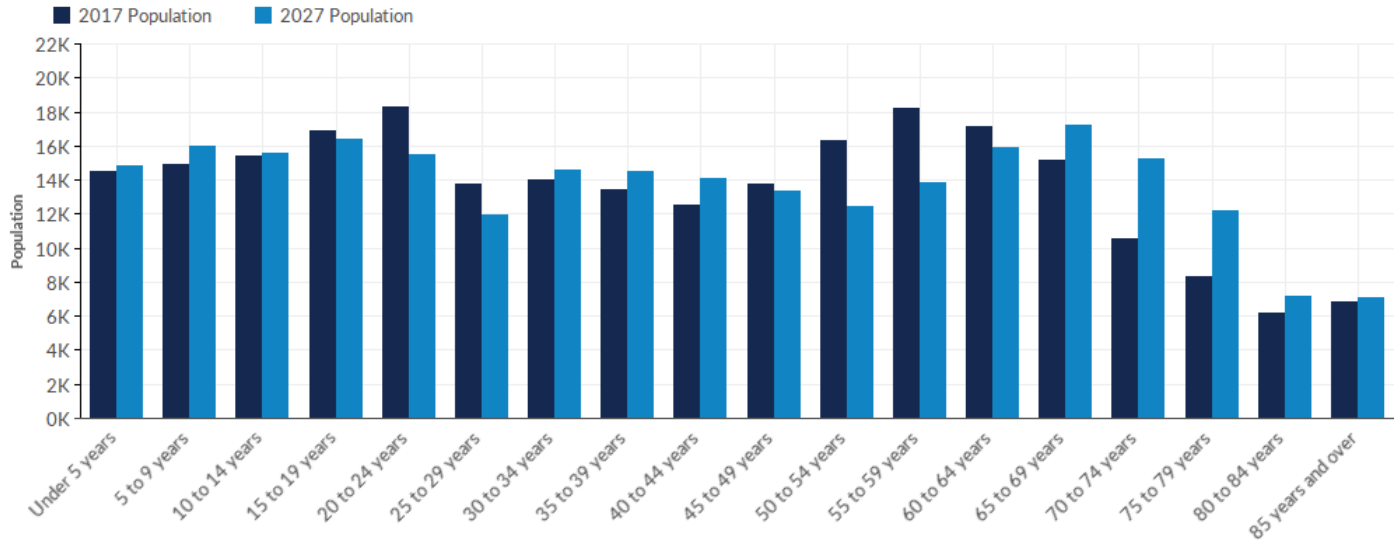
| NAICS | Description | 2017 Jobs | Wage Growth 2012-2016 |
|-------|--|-----------|-----------------------|
| 31 | Manufacturing - comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. | 16,963 | 4.03% |
| 90 | Government - consists of establishments of federal, state, and local government agencies that administer, oversee, and manage public programs and have executive, legislative, or judicial authority over other institutions within a given area. | 16,546 | 8.36% |
| 62 | Health Care and Social Assistance - comprises establishments providing health care and social assistance for individuals. The sector includes both health care and social assistance because it is sometimes difficult to distinguish between the boundaries of these two activities. | 14,754 | 7.48% |
| 44 | Retail Trade -comprises establishments engaged in retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. | 13,628 | 8.68% |
| 72 | Accommodation and Food Services -comprises establishments providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption. | 8,948 | 14.21% |
| 52 | Finance and Insurance - comprises establishments primarily engaged in financial transactions and/or in facilitating financial transactions. | 6,137 | 11.29% |
| 81 | Other Services - (except Public Administration) comprises establishments engaged in providing services not specifically provided for elsewhere in the classification system. | 5,755 | 3.93% |
| 23 | Construction - comprises establishments primarily engaged in the construction of buildings or engineering projects (e.g., highways and utility systems). | 5,705 | 10.27% |
| 42 | Wholesale Trade - comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. | 5,342 | 9.09% |
| 48 | Transportation and Warehousing - includes industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation | 3,888 | 6.82% |
| 54 | Professional, Scientific, and Technical Services - comprises establishments that specialize in performing professional, scientific, and technical activities for others. These activities require a high degree of expertise and training. | 3,837 | 6.51% |
| 61 | Educational Services - comprises establishments that provide instruction and training in a wide variety of subjects. This instruction and training is provided by specialized establishments, such as schools, colleges, universities, and training centers. | 3,744 | 3.46% |
| 56 | Administrative, Support, Waste Management and Remediation Services - comprises establishments performing routine support activities for the day-to-day operations of other organizations. | 3,575 | 17.30% |
| 71 | Arts, Entertainment, and Recreation - includes a wide range of establishments that operate facilities or provide services to meet varied cultural, entertainment, and recreational interests of their patrons. | 2,146 | 6.69% |
| 11 | Crop and Animal Production - comprises establishments primarily engaged in growing crops, raising animals, harvesting timber, and harvesting fish and other animals from a farm, ranch, or their natural habitats. | 1,851 | 10.16% |
| 51 | Information - comprises establishments engaged in producing and distributing information and cultural products, or providing the means to transmit or distribute these products as well as data or communications, or processing data. | 1,279 | 4.31% |

DEMOGRAPHIC INFORMATION

Source for Demographic Information from 2007 through 2027:

- ALL demographic data is from the U.S. Census Bureau’s Population Estimates program and the U.S. Census Bureau and Bureau of Labor Statistics Current Population Survey. (See appendix A).

PROJECTED WORKING AGE POPULATION



The graph above represents projected working age population for the 7-county region

| 7 County Region | | | | |
|--------------------------|----------------|----------------|--------------|--------------|
| Age | 2017 | 2027 | 2017 % | 2027 % |
| 15 to 19 | 16,882 | 16,426 | 6.9% | 6.6% |
| 20 to 24 | 18,279 | 15,472 | 7.4% | 6.2% |
| 25 to 29 | 13,779 | 11,948 | 5.6% | 4.8% |
| 30 to 34 | 14,021 | 14,547 | 5.7% | 5.9% |
| 35 to 39 | 13,431 | 14,537 | 5.5% | 5.9% |
| 40 to 44 | 12,490 | 14,091 | 5.1% | 5.7% |
| 45 to 49 | 13,771 | 13,347 | 5.6% | 5.4% |
| 50 to 54 | 16,331 | 12,457 | 6.6% | 5.0% |
| 55 to 59 | 18,249 | 13,828 | 7.4% | 5.6% |
| 60 to 64 | 17,164 | 15,916 | 7.0% | 6.4% |
| 65 to 69 | 15,150 | 17,195 | 6.2% | 6.9% |
| Total Working Age | 169,547 | 159,764 | 68.8% | 64.4% |
| Total Pop | 246,335 | 247,892 | | |

| Dubuque MSA | | | | |
|--------------------------|---------------|---------------|--------------|--------------|
| Age | 2017 | 2027 | 2017 % | 2027 % |
| 15 to 19 | 6,775 | 6,605 | 6.9% | 6.6% |
| 20 to 24 | 6,857 | 6,173 | 7.0% | 6.2% |
| 25 to 29 | 6,317 | 5,558 | 6.5% | 5.6% |
| 30 to 34 | 6,199 | 6,064 | 6.4% | 6.1% |
| 35 to 39 | 5,586 | 6,404 | 5.7% | 6.4% |
| 40 to 44 | 5,027 | 6,099 | 5.2% | 6.1% |
| 45 to 49 | 5,617 | 5,478 | 5.8% | 5.5% |
| 50 to 54 | 6,467 | 4,973 | 6.6% | 5.0% |
| 55 to 59 | 6,790 | 5,502 | 7.0% | 5.5% |
| 60 to 64 | 6,414 | 6,142 | 6.6% | 6.2% |
| 65 to 69 | 5,552 | 6,105 | 5.7% | 6.1% |
| Total Working Age | 67,601 | 65,103 | 69.3% | 65.2% |
| Total Pop | 97,600 | 99,809 | | |

PROJECTED POPULATION BY RACE/ETHNICITY

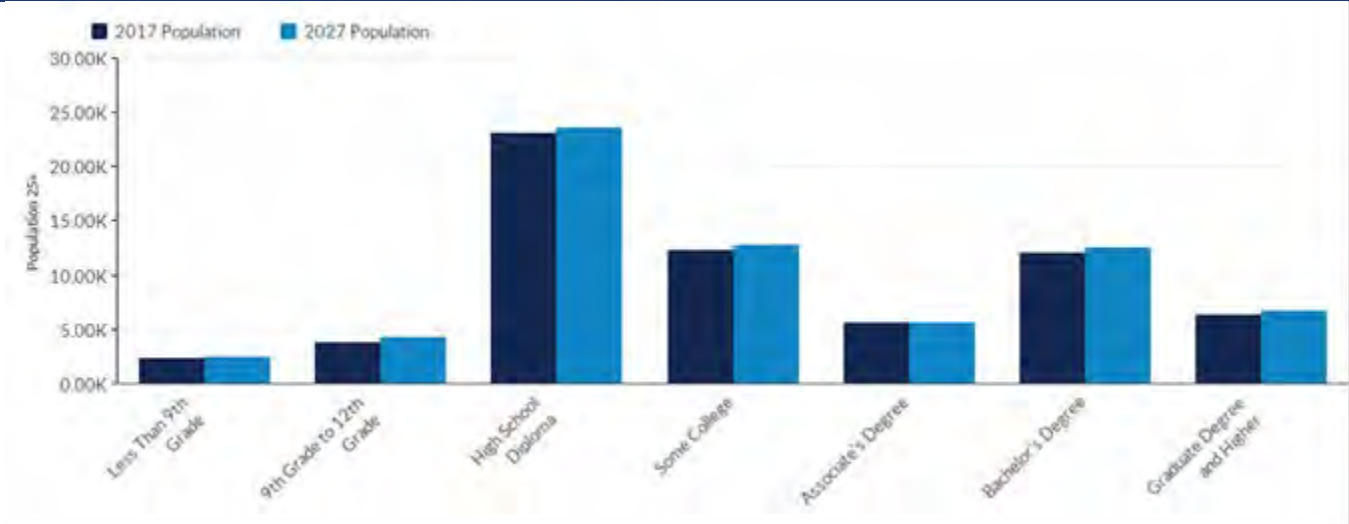
| 7 County Region | | | | | Dubuque MSA | | | | |
|---|----------------|----------------|-------------|-------------|---|---------------|---------------|-------------|-------------|
| Race/Ethnicity | 2017 | 2027 | 2017 % | 2027 % | Race/Ethnicity | 2017 | 2027 | 2017 % | 2027 % |
| White (NHS) | 230,453 | 229,179 | 93.5% | 92.4% | White (NHS) | 88,844 | 89,425 | 91.3% | 89.6% |
| Black (NHS) | 4,904 | 5,946 | 1.9% | 2.4% | Black (NHS) | 3,120 | 3,793 | 3.2% | 3.8% |
| White (HIS) | 4,420 | 5,090 | 1.7% | 2.0% | White (HIS) | 1,988 | 2,316 | 2.0% | 2.3% |
| Asian (NHS) | 2,719 | 3,244 | 1.1% | 1.0% | Asian (NHS) | 1,449 | 1,760 | 1.4% | 1.7% |
| Two or More Races (NHS) | 2,186 | 2,459 | .89% | .99% | Two or More Races (NHS) | 1,293 | 1,423 | 1.3% | 1.4% |
| Native Hawaiian or Pacific Islander (NHS) | 557 | 698 | .23% | .28% | Native Hawaiian or Pacific Islander (NHS) | 392 | 508 | .40% | .51% |
| American Indian or Alaskan (NHS) | 413 | 430 | .17% | .17% | American Indian or Alaskan (NHS) | 146 | 146 | .15% | .15% |
| Black (HIS) | 214 | 274 | .09% | .11% | Black (HIS) | 118 | 138 | .12% | .14% |
| American Indian or Alaskan Native (HIS) | 198 | 244 | .08% | .10% | American Indian or Alaskan Native (HIS) | 105 | 133 | .11% | .13% |
| Two or More Races (HIS) | 192 | 234 | .08% | .09% | Two or More Races (HIS) | 97 | 112 | .10% | .11% |
| Asian (HIS) | 58 | 69 | .02% | .03% | Asian (HIS) | 34 | 41 | .03% | .04% |
| Native Hawaiian or Pacific Islander (HIS) | 21 | 23 | .01% | .01% | Native Hawaiian or Pacific Islander (HIS) | 13 | 14 | .01% | .01% |
| Total | 246,335 | 247,892 | 100% | 100% | Total | 97,600 | 99,809 | 100% | 100% |

Hispanic = (HIS) Non-Hispanic = (NHS)

PROJECTED POPULATION BY GENDER

| 7 County Region | | | | | Dubuque MSA | | | | |
|-----------------|----------------|----------------|-------------|-------------|--------------|---------------|---------------|-------------|-------------|
| Gender | 2017 | 2027 | 2017 % | 2027 % | Gender | 2017 | 2027 | 2017 % | 2027 % |
| Males | 124,172 | 125,129 | 50.4% | 50.4% | Females | 49,365 | 50,448 | 50.5% | 50.5% |
| Females | 122,162 | 122,763 | 49.5% | 49.5% | Males | 48,235 | 49,361 | 49.4% | 49.4% |
| Total | 246,335 | 247,892 | 100% | 100% | Total | 97,600 | 99,809 | 100% | 100% |

EDUCATIONAL ATTAINMENT OVERVIEW



The graph above represents educational attainment projections for the 7 county region.

| 7 County Region | | | |
|---------------------|----------------|-----------------|-------------|
| Education Level | 2017 | % Chg 2007-2017 | % Pop |
| < 9th Grade | 6,473 | -32% | 3.9% |
| 9th - 12th Grade | 8,934 | 18% | 5.5% |
| High School Diploma | 64,740 | -3% | 38.9% |
| Some College | 32,647 | 5% | 19.6% |
| Associate's Degree | 16,011 | 20% | 9.6% |
| Bachelor's Degree | 24,669 | 17% | 14.8% |
| Graduate and Higher | 12,856 | 15% | 7.7% |
| Total | 166,329 | | 100% |

| Dubuque MSA | | | |
|---------------------|---------------|-----------------|-------------|
| Education Level | 2017 | % Chg 2007-2017 | % Pop |
| < 9th Grade | 2,268 | -29% | 3.5% |
| 9th - 12th Grade | 3,783 | 35% | 5.8% |
| High School Diploma | 23,032 | -12% | 35.2% |
| Some College | 12,299 | 9% | 18.8% |
| Associate's Degree | 5,560 | 25% | 8.5% |
| Bachelor's Degree | 12,055 | 24% | 18.4% |
| Graduate and Higher | 6,375 | 18% | 9.8% |
| Total | 65,372 | | 100% |

Notes:

- The adult population is defined as the population 25 and older for the purposes of this analysis.
- The data in the tables above represents the highest level of education attained by the total population of each set.
- For example, in the Dubuque MSA there is not a 35.2% graduation rate of High School Students; the table shows that 35.2% of the Dubuque MSA population over age 25 has a High School Diploma as their highest level of educational achievement.

OCCUPATIONAL OUTLOOK

ORGANIZATIONAL METHOD

- ▼ The top 75 jobs, from most to least jobs in the region in 2017.
- ▼ Info values of Advanced Degree (AD), Less than High School (<HS) and Experience (XP) indicate occupations that do not require training beyond high school, require an advanced degree, or typically require workplace experience to advance into and graduates are not qualified by completing a degree alone.

| Description | 2017Jobs | 2027Jobs | Change | Annual Openings | Annual Completions | Median Wage | Info |
|---|----------|----------|--------|-----------------|--------------------|-------------|------|
| Cashiers | 3,793 | 3,933 | 140 | 731 | | \$8.95 | <HS |
| Retail Salespersons | 3,180 | 3,343 | 163 | 498 | 10 | \$9.67 | <HS |
| Office Clerks, General | 2,872 | 3,005 | 133 | 344 | | \$13.68 | |
| Combined Food Prep & Serving Workers, Including Fast Food | 2,465 | 2,610 | 145 | 481 | 16 | \$8.84 | <HS |
| Team Assemblers | 2,414 | 2,519 | 105 | 297 | 12 | \$15.17 | |
| Registered Nurses | 2,374 | 2,772 | 398 | 172 | 155 | \$25.56 | |
| Heavy & Tractor-Trailer Truck Drivers | 2,144 | 2,259 | 115 | 245 | 34 | \$19.43 | |
| Nursing Assistants | 1,902 | 2,200 | 298 | 268 | 338 | \$12.08 | |
| Secretaries & Admin Assistants, not Legal, Medical, & Executive | 1,785 | 1,932 | 147 | 205 | 38 | \$14.67 | |
| General & Operations Managers | 1,697 | 1,855 | 158 | 151 | 310 | \$31.26 | XP |
| Waiters & Waitresses | 1,692 | 1,564 | (128) | 305 | | \$8.92 | <HS |
| Customer Service Representatives | 1,671 | 1,918 | 247 | 247 | | \$15.26 | |
| Janitors & Cleaners, not Maids & Housekeeping Cleaners | 1,657 | 1,783 | 126 | 235 | | \$11.84 | <HS |
| Laborers & Freight, Stock, & Material Movers, H& | 1,644 | 1,875 | 231 | 263 | | \$13.77 | <HS |
| Personal Care Aides | 1,534 | 1,691 | 157 | 249 | 344 | \$10.47 | |
| Teacher Assistants | 1,485 | 1,565 | 80 | 155 | 21 | \$11.49 | |
| Bookkeeping, Accounting, & Auditing Clerks | 1,360 | 1,325 | (35) | 147 | 56 | \$15.66 | |
| Secondary School Teachers, not Special & Career/Tech | 1,311 | 1,334 | 23 | 101 | 74 | \$24.78 | |
| Postsecondary Teachers | 1,293 | 1,486 | 193 | 128 | 83 | \$31.22 | AD |
| Stock Clerks & Order Fillers | 1,285 | 1,402 | 117 | 183 | | \$10.59 | <HS |
| Maintenance & Repair Workers, General | 1,236 | 1,327 | 91 | 125 | 17 | \$15.72 | |
| Sales Rep, Wholesale & Manuf, not Tech & Sci Products | 1,206 | 1,232 | 26 | 125 | 320 | \$23.50 | |
| Elementary School Teachers, not Special Ed | 1,110 | 1,164 | 54 | 94 | 136 | \$22.88 | |
| Construction Laborers | 1,087 | 1,291 | 204 | 141 | 11 | \$16.52 | <HS |
| Farmworkers & Laborers, Crop, Nursery, & Greenhouse | 928 | 1,020 | 92 | 163 | | \$12.12 | |
| Maids & Housekeeping Cleaners | 916 | 1,001 | 85 | 139 | | \$10.06 | |
| Cooks, Restaurant | 903 | 883 | (20) | 129 | 16 | \$9.89 | |
| First-Line Supervisors of Retail Sales Workers | 880 | 939 | 59 | 100 | | \$16.36 | XP |
| Bartenders | 863 | 869 | 6 | 137 | | \$8.92 | <HS |
| Packers & Packagers, H& | 834 | 905 | 71 | 135 | | \$10.59 | |
| First-Line Supervisors of Office & Admin Support Workers | 823 | 952 | 129 | 95 | | \$21.97 | XP |
| Military occupations | 794 | 727 | (67) | 82 | | \$16.87 | MIL |
| Childcare Workers | 786 | 910 | 124 | 132 | 21 | \$8.73 | |
| Welders, Cutters, Solderers, & Brazers | 786 | 840 | 54 | 94 | 85 | \$16.99 | |
| Accountants & Auditors | 754 | 894 | 140 | 84 | 80 | \$25.55 | |
| Automotive Service Technicians & Mechanics | 744 | 815 | 71 | 78 | 12 | \$17.33 | |

| Description | 2017Jobs | 2027Jobs | Change | Annual Openings | Annual Completions | Median Wage | Info |
|---|----------|----------|--------|-----------------|--------------------|-------------|------|
| Receptionists & Information Clerks | 742 | 776 | 34 | 101 | | \$12.98 | |
| Light Truck or Delivery Services Drivers | 715 | 750 | 35 | 81 | 34 | \$14.76 | |
| Business Operations Specialists, All Other | 702 | 772 | 70 | 68 | 310 | \$24.22 | |
| Electrical & Electronic Equipment Assemblers | 692 | 631 | (61) | 72 | 19 | \$17.33 | |
| Cooks, Institution & Cafeteria | 689 | 728 | 39 | 105 | 16 | \$11.36 | <HS |
| First-Line Supervisors of Production & Operating Workers | 670 | 700 | 30 | 69 | | \$23.98 | XP |
| Tellers | 653 | 683 | 30 | 87 | | \$12.80 | |
| Industrial Truck & Tractor Operators | 648 | 721 | 73 | 81 | 34 | \$15.31 | <HS |
| First-Line Supervisors of Food Preparation & Serving Workers | 623 | 643 | 20 | 90 | | \$12.44 | XP |
| Financial Managers | 617 | 695 | 78 | 57 | 21 | \$43.15 | XP |
| Insurance Sales Agents | 607 | 767 | 160 | 80 | 310 | \$19.30 | |
| Landscaping & Groundskeeping Workers | 602 | 659 | 57 | 80 | | \$11.40 | <HS |
| Machinists | 587 | 659 | 72 | 73 | 17 | \$19.03 | |
| Counter Attendants, Cafeteria, Food Concession, & Coffee Shop | 581 | 596 | 15 | 141 | | \$8.86 | <HS |
| Executive Secretaries & Executive Administrative Assistants | 573 | 567 | (6) | 59 | 38 | \$18.61 | |
| Carpenters | 550 | 600 | 50 | 56 | 12 | \$19.02 | |
| Licensed Practical & Licensed Vocational Nurses | 535 | 610 | 75 | 41 | 71 | \$19.63 | |
| Computer-Controlled Machine Tool Operators, Metal & Plastic | 525 | 605 | 80 | 66 | 17 | \$17.49 | |
| Operating Engineers & Construction Equipment Operators | 501 | 585 | 84 | 64 | 11 | \$21.21 | |
| Middle School Teachers, Except Special & Career/Tech | 483 | 499 | 16 | 40 | 56 | \$24.89 | |
| Police & Sheriff's Patrol Officers | 472 | 501 | 29 | 35 | 33 | \$24.42 | |
| Substitute Teachers | 470 | 498 | 28 | 56 | | \$12.72 | |
| Food Preparation Workers | 468 | 493 | 25 | 87 | 16 | \$9.14 | <HS |
| Inspectors, Testers, Sorters, Samplers, & Weighers | 431 | 465 | 34 | 57 | 12 | \$17.70 | |
| Industrial Machinery Mechanics | 406 | 502 | 96 | 48 | 17 | \$22.71 | |
| Packaging & Filling Machine Operators & Tenders | 406 | 445 | 39 | 53 | | \$13.72 | |
| Preschool Teachers, Except Special Education | 397 | 458 | 61 | 46 | 25 | \$12.14 | |
| Medical & Health Services Managers | 396 | 439 | 43 | 34 | 10 | \$35.04 | |
| Shipping, Receiving, & Traffic Clerks | 393 | 420 | 27 | 44 | | \$14.85 | |
| First-Line Supervisors of Construction Trades & Extraction | 390 | 447 | 57 | 44 | | \$27.68 | XP |
| Production Workers, All Other | 390 | 406 | 16 | 47 | | \$14.40 | |
| Medical Assistants | 385 | 415 | 30 | 48 | 64 | \$14.55 | |
| Electricians | 382 | 332 | (50) | 36 | 11 | \$26.21 | |
| Dishwashers | 375 | 344 | (31) | 61 | | \$8.70 | <HS |
| Bus Drivers, School or Special Client | 374 | 367 | (7) | 47 | | \$14.49 | |
| Security Guards | 374 | 405 | 31 | 54 | | \$11.54 | |
| Computer User Support Specialists | 372 | 452 | 80 | 37 | 31 | \$18.49 | |
| Rehabilitation Counselors | 365 | 383 | 18 | 40 | | \$13.27 | AD |
| Clergy | 354 | 429 | 75 | 49 | 7 | \$20.08 | |

NOTES

Completions or *graduates* may be counted in more than one occupation because a degree or certificate often qualifies a graduate for more than one occupation (*i.e. a business graduate could be an insurance agent or a sales rep.*). The link between occupations and associated awards are determined by a crosswalk*.

Why could we see more completions than annual openings, yet still see a workforce shortage for that occupation?

- Completions are linked to **multiple** jobs and one person will only hold on job at a time, removing them from the pool of available workers.
- We may have out-migration of skilled graduates to other communities.
- We may have unknown barriers to hiring new graduates, such as reluctance to hire and train, lack of employer or community connections with students before they graduate to keep them here, and or narrow qualification requirements.

*Modified EMSI Proprietary of the BLS (Walker Center) CIP-to-SOC crosswalk.

DEFINITIONS

How does EMSI calculate projections?

If you use an EMSI product or service, chances are you've seen some of our labor market projections. We provide detailed job estimates, by industry and occupation, for each of the next 10 years from the current year.

A common question that we get from clients who see these figures is where do EMSI projections come from? The short answer is that we create our projections based on past trends carried forward, and published projections from state and federal sources. If you're after something a little more detailed, read on.

The first step in both our industry and occupation projections is our robust industry data. We first create simple short-, mid-, and long-term trend lines for every industry and county based on the historical data.

Those lines are then averaged and dampened to prevent extreme change. We then incorporate national industry projections (BLS national employment projections) as well as state and regional projections provided by state labor market organizations to adjust these numbers again.

Finally, we take aggregate geography and industry group figures for 10-year percentage change and make sure it matches the corresponding published geography and industry numbers.

EMSI projections will not match the BLS or any other individual state projections at the most detailed level. This can be explained in a variety of ways.

Differences in Coverage

EMSI has broken out our labor market data into four different classes of worker that allow our clients to dig into specific elements of their economy. In most states, the first two classes of workers (QCEW Employees and Non-QCEW Employees) are most closely comparable to the industry projections from the published sources. We don't expect our self-employment and proprietors projections to match BLS and state-level projections.

We Don't Use BLS/State Occupation Projections

(except for our Annual Job Openings estimates)

Our occupation projections are based off of our industry numbers with our projected, regionalized staffing pattern applied to the figures. As a result, the occupation projections will necessarily differ from BLS occupation numbers.

Differences in Methodology

EMSI uses a combination of BLS, state, and internal projection methods. This will naturally differ from the BLS and state projections alone.

Release Lag

EMSI projections are based on the most recent available data and published projections, but the BLS and states release only long-term projections on a two-year basis. EMSI's internal projections are more heavily weighted as state/national projections age.

Occupation Data

EMSI occupation employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry.

Staffing Patterns Data

The staffing pattern data in this report are compiled from several sources using a specialized process. For QCEW and Non-QCEW Employees classes of worker, sources include Occupational Employment Statistics, the National Industry-Occupation Employment Matrix, and the American Community Survey. For the Self-Employed and Extended Proprietors classes of worker, the primary source is the American Community Survey, with a small amount of information from Occupational Employment Statistics.

State Data Sources

This report uses state data from the following agencies: Illinois Department of Employment Security, Employment Projections; Iowa Workforce Development; Wisconsin Department of Workforce Development, Bureau of Workforce Information

Primary Data Source Information Legend

This is a breakout of the edition of the source used by EMSI. Shaded values indicate a change from the previous set.

| Name | Abbrev. | Source | Emsi 2017.3 |
|---|---------|--------|------------------|
| State Personal Income | SPI | BEA | 2015 |
| Local Area Personal Income | LPI | BEA | 2015 |
| Make and Use Tables | MUTS | BEA | 2015 |
| Gross Domestic Product by State | GSP | BEA | 2016Q4 |
| National Income and Product Accounts | NIPA | BEA | 2017Q2 |
| American Community Survey | ACS | Census | 2015 |
| County Business Patterns | CBP | Census | 2015 |
| ZIP Code Business Patterns | ZBP | Census | 2015 |
| Non-Employer Statistics | NES | Census | 2015 |
| Census of Employment and Wages | QCEW | BLS | 2016Q4 |
| National Ind/Occ Employment Matrix | NIOEM | BLS | 2014-2024 |
| Occupational Employment Statistics | OES | BLS | 2016 |
| Railroad Retirement Board | RRB | RRB | 2016/2015 |
| Quarterly Workforce Indicators | QWI | Census | 2017Q2 |
| Consumer Expenditure Survey | CEX | BLS | 2015 |
| Current Population Survey | CPS | Census | 2015 |
| State and Local Finances (Census of Gov.) | COG | Census | 2014 |
| Origin-Destination Employment Statistics | LODES | Census | 2014 |
| Population Estimates | POP | Census | 2016 |

APPENDIX B

| Title | Description |
|---|---|
| Cashiers | Receive and disburse money in establishments other than financial institutions. May use electronic scanners, cash registers, or related equipment. May process credit or debit card transactions and validate checks. Excludes "Gaming Cage Persons and Booth Cashiers" (41-2012). |
| Retail Salespersons | Sell merchandise, such as furniture, motor vehicles, appliances, or apparel to consumers. Excludes "Cashiers" (41-2011). |
| Office Clerks, General | Perform duties too varied and diverse to be classified in any specific office clerical occupation, requiring knowledge of office systems and procedures. Clerical duties may be assigned in accordance with the office procedures of individual establishments and may include a combination of answering telephones, bookkeeping, typing or word processing, stenography, office machine operation, and filing. |
| Registered Nurses | Assess patient health problems and needs, develop and implement nursing care plans, and maintain medical records. Administer nursing care to ill, injured, convalescent, or disabled patients. May advise patients on health maintenance and disease prevention or provide case management. Licensing or registration required. Includes Clinical Nurse Specialists. Excludes "Nurse Anesthetists" (29-1151), "Nurse Midwives" (29-1161), and "Nurse Practitioners" (29-1171). |
| Combined Food Preparation and Serving Workers, Including Fast Food | Perform duties which combine preparing and serving food and nonalcoholic beverages. |
| Team Assemblers | Work as part of a team having responsibility for assembling an entire product or component of a product. Team assemblers can perform all tasks conducted by the team in the assembly process and rotate through all or most of them rather than being assigned to a specific task on a permanent basis. May participate in making management decisions affecting the work. Includes team leaders who work as part of the team. Assemblers who continuously perform the same task are classified elsewhere in 51-2000. |
| Heavy and Tractor-Trailer Truck Drivers | Drive a tractor-trailer combination or a truck with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW). May be required to unload truck. Requires commercial drivers' license. |
| Nursing Assistants | Provide basic patient care under direction of nursing staff. Perform duties such as feed, bathe, dress, groom, or move patients, or change linens. May transfer or transport patients. Includes nursing care attendants, nursing aides, and nursing attendants. Excludes "Home Health Aides" (31-1011), "Orderlies" (31-1015), "Personal Care Aides" (39-9021), and "Psychiatric Aides" (31-1013). |
| Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | Perform routine clerical and administrative functions such as drafting correspondence, scheduling appointments, organizing and maintaining paper and electronic files, or providing information to callers. Excludes legal, medical, and executive secretaries (43-6011 through 43-6013). |
| Customer Service Representatives | Interact with customers to provide information in response to inquiries about products and services and to handle and resolve complaints. Excludes individuals whose duties are primarily installation, sales, or repair. |
| Laborers and Freight, Stock, and Material Movers, Hand | Manually move freight, stock, or other materials or perform other general labor. Includes all manual laborers not elsewhere classified. Excludes "Material Moving Workers" (53-7011 through 53-7199) who use power equipment. Excludes "Construction Laborers" (47-2061) and "Helpers, Construction Trades" (47-3011 through 47-3019). |
| General and Operations Managers | Plan, direct, or coordinate the operations of public or private sector organizations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. Excludes First-Line Supervisors. |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | Keep buildings in clean and orderly condition. Perform heavy cleaning duties, such as cleaning floors, shampooing rugs, washing walls and glass, and removing rubbish. Duties may include tending furnace and boiler, performing routine maintenance activities, notifying management of need for repairs, and cleaning snow or debris from sidewalk. |
| Personal Care Aides | Assist the elderly, convalescents, or persons with disabilities with daily living activities at the person's home or in a care facility. Duties performed at a place of residence may include keeping house (making beds, doing laundry, washing dishes) and preparing meals. May provide assistance at non-residential care facilities. May advise families, the elderly, convalescents, and persons with disabilities regarding such things as nutrition, cleanliness, and household activities. |
| Teacher Assistants | Perform duties that are instructional in nature or deliver direct services to students or parents. Serve in a position for which a teacher has ultimate responsibility for the design and implementation of educational programs and services. Excludes "Graduate Teaching Assistants" (25-1191). |
| Waiters and Waitresses | Take orders and serve food and beverages to patrons at tables in dining establishment. Excludes "Counter Attendants, Cafeteria, Food Concession, and Coffee Shop" (35-3022). |
| Stock Clerks and Order Fillers | Receive, store, and issue sales floor merchandise, materials, equipment, and other items from stockroom, warehouse, or storage yard to fill shelves, racks, tables, or customers' orders. May mark prices on merchandise and set up sales displays. Excludes "Laborers and Freight, Stock, and Material Movers, Hand" (53-7062), and "Shipping, Receiving, and Traffic Clerks" (43-5071). |
| Secondary School Teachers, Except Special and Career/Technical Education | Teach students in one or more subjects, such as English, mathematics, or social studies at the secondary level in public or private schools. May be designated according to subject matter specialty. Substitute teachers are included in "Teachers and Instructors, All Other" (25-3099). Excludes "Career/Technical Education Teachers, Secondary School" (25-2032) and "Special Education Teachers" (25-2050). |
| Maintenance and Repair Workers, General | Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs. Excludes "Maintenance Workers, Machinery" (49-9043). |
| Bookkeeping, Accounting, and Auditing Clerks | Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers. Excludes "Payroll and Timekeeping Clerks" (43-3051). |

| Title | Description |
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| Construction Laborers | Perform tasks involving physical labor at construction sites. May operate hand and power tools of all types: air hammers, earth tampers, cement mixers, small mechanical hoists, surveying and measuring equipment, and a variety of other equipment and instruments. May clean and prepare sites, dig trenches, set braces to support the sides of excavations, erect scaffolding, and clean up rubble, debris and other waste materials. May assist other craft workers. Construction laborers who primarily assist a particular craft worker are classified under "Helpers, Construction Trades" (47-3010). Excludes "Hazardous Materials Removal Workers" (47-4041). |
| Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products | Sell goods for wholesalers or manufacturers to businesses or groups of individuals. Work requires substantial knowledge of items sold. |
| Elementary School Teachers, Except Special Education | Teach students basic academic, social, and other formative skills in public or private schools at the elementary level. Substitute teachers are included in "Teachers and Instructors, All Other" (25-3099). Excludes "Special Education Teachers" (25-2050). |
| Farmworkers and Laborers, Crop, Nursery, and Greenhouse | Manually plant, cultivate, and harvest vegetables, fruits, nuts, horticultural specialties, and field crops. Use hand tools, such as shovels, trowels, hoes, tampers, pruning hooks, shears, and knives. Duties may include tilling soil and applying fertilizers; transplanting, weeding, thinning, or pruning crops; applying pesticides; or cleaning, grading, sorting, packing, and loading harvested products. May construct trellises, repair fences and farm buildings, or participate in irrigation activities. Excludes "Graders and Sorters, Agricultural Products" (45-2041) and "Forest, Conservation, and Logging Workers" (45-4011 through 45-4029). |
| Maids and Housekeeping Cleaners | Perform any combination of light cleaning duties to maintain private households or commercial establishments, such as hotels and hospitals, in a clean and orderly manner. Duties may include making beds, replenishing linens, cleaning rooms and halls, and vacuuming. |
| Childcare Workers | Attend to children at schools, businesses, private households, and childcare institutions. Perform a variety of tasks, such as dressing, feeding, bathing, and overseeing play. Excludes "Preschool Teachers, Except Special Education" (25-2011) and "Teacher Assistants" (25-9041). |
| Packers and Packers, Hand | Pack or package by hand a wide variety of products and materials. |
| Accountants and Auditors | Examine, analyze, and interpret accounting records to prepare financial statements, give advice, or audit and evaluate statements prepared by others. Install or advise on systems of recording costs or other financial and budgetary data. Excludes "Tax Examiners and Collectors, and Revenue Agents" (13-2081). |
| Cooks, Restaurant | Prepare, season, and cook dishes such as soups, meats, vegetables, or desserts in restaurants. May order supplies, keep records and accounts, price items on menu, or plan menu. |
| Bartenders | Mix and serve drinks to patrons, directly or through waitstaff. |
| Welders, Cutters, Solderers, and Brazers | Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products. |
| Automotive Service Technicians and Mechanics | Diagnose, adjust, repair, or overhaul automotive vehicles. Excludes "Automotive Body and Related Repairers" (49-3021), "Bus and Truck Mechanics and Diesel Engine Specialists" (49-3031), and "Electronic Equipment Installers and Repairers, Motor Vehicles" (49-2096). |
| Receptionists and Information Clerks | Answer inquiries and provide information to the general public, customers, visitors, and other interested parties regarding activities conducted at establishment and location of departments, offices, and employees within the organization. Excludes "Switchboard Operators, Including Answering Service" (43-2011). |
| Business Operations Specialists, All Other | All business operations specialists not listed separately. |
| Insurance Sales Agents | Sell life, property, casualty, health, automotive, or other types of insurance. May refer clients to independent brokers, work as an independent broker, or be employed by an insurance company. |
| Light Truck or Delivery Services Drivers | Drive a light vehicle, such as a truck or van, with a capacity of less than 26,000 pounds Gross Vehicle Weight (GVW), primarily to deliver or pick up merchandise or to deliver packages. May load and unload vehicle. Excludes "Couriers and Messengers" (43-5021) and "Driver/Sales Workers" (53-3031). |
| Cooks, Institution and Cafeteria | Prepare and cook large quantities of food for institutions, such as schools, hospitals, or cafeterias. |
| Industrial Truck and Tractor Operators | Operate industrial trucks or tractors equipped to move materials around a warehouse, storage yard, factory, construction site, or similar location. Excludes "Logging Equipment Operators" (45-4022). |
| Tellers | Receive and pay out money. Keep records of money and negotiable instruments involved in a financial institution's various transactions. |
| Landscaping and Groundskeeping Workers | Landscape or maintain grounds of property using hand or power tools or equipment. Workers typically perform a variety of tasks, which may include any combination of the following: sod laying, mowing, trimming, planting, watering, fertilizing, digging, raking, sprinkler installation, and installation of mortarless segmental concrete masonry wall units. Excludes "Farmworkers and Laborers, Crop, Nursery, and Greenhouse" (45-2092). |
| Machinists | Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures. |
| Electrical and Electronic Equipment Assemblers | Assemble or modify electrical or electronic equipment, such as computers, test equipment telemetering systems, electric motors, and batteries. |
| Licensed Practical and Licensed Vocational Nurses | Care for ill, injured, or convalescing patients or persons with disabilities in hospitals, nursing homes, clinics, private homes, group homes, and similar institutions. May work under the supervision of a registered nurse. Licensing required. |
| Computer-Controlled Machine Tool Operators, Metal and Plastic | Operate computer-controlled machines or robots to perform one or more machine functions on metal or plastic work pieces. |

| Title | Description |
|---|---|
| Carpenters | Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions, joists, studding, and rafters; and wood stairways, window and door frames, and hardwood floors. May also install cabinets, siding, drywall and batt or roll insulation. Includes brattice builders who build doors or brattices (ventilation walls or partitions) in underground passageways |
| Counter Attendants, Cafeteria, Food Concession, and Coffee Shop | Serve food to diners at counter or from a steam table. Counter attendants who also wait tables are included in "Waiters and Waitresses" (35-3031). |
| Operating Engineers and Other Construction Equipment Operators | Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. May repair and maintain equipment in addition to other duties. Excludes "Crane and Tower Operators" (53-7021) and "Extraction Workers" (47-5000). |
| Executive Secretaries and Executive Administrative Assistants | Provide high-level administrative support by conducting research, preparing statistical reports, handling information requests, and performing clerical functions such as preparing correspondence, receiving visitors, arranging conference calls, and scheduling meetings. May also train and supervise lower-level clerical staff. Excludes "Secretaries" (43-6012 through 43-6014). |
| Industrial Machinery Mechanics | Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems. Excludes "Millwrights" (49-9044), "Mobile Heavy Equipment Mechanics, Except Engines" (49-3042), and "Maintenance Workers, Machinery" (49-9043). |
| Police and Sheriff's Patrol Officers | Maintain order and protect life and property by enforcing local, tribal, State, or Federal laws and ordinances. Perform a combination of the following duties: patrol a specific area; direct traffic; issue traffic summonses; investigate accidents; apprehend and arrest suspects, or serve legal processes of courts. |
| Middle School Teachers, Except Special and Career/Technical Education | Teach students in one or more subjects in public or private schools at the middle, intermediate, or junior high level, which falls between elementary and senior high school as defined by applicable laws and regulations. Substitute teachers are included in "Teachers and Instructors, All Other" (25-3099). Excludes "Career/Technical Education Teachers, Middle School" (25-2023) and "Special Education Teachers" (25-2050). |
| Food Preparation Workers | Perform a variety of food preparation duties other than cooking, such as preparing cold foods and shellfish, slicing meat, and brewing coffee or tea. |
| Inspectors, Testers, Sorters, Samplers, and Weighers | Inspect, test, sort, sample, or weigh nonagricultural raw materials or processed, machined, fabricated, or assembled parts or products for defects, wear, and deviations from specifications. May use precision measuring instruments and complex test equipment. |
| Software Developers, Applications | Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers. |
| Preschool Teachers, Except Special Education | Instruct preschool-aged children in activities designed to promote social, physical, and intellectual growth needed for primary school in preschool, day care center, or other child development facility. Substitute teachers are included in "Teachers and Instructors, All Other" (25-3099). May be required to hold State certification. Excludes "Childcare Workers" (39-9011) and "Special Education Teachers" (25-2050). |
| Computer User Support Specialists | Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems. Excludes "Network and Computer Systems Administrators" (15-1142). |
| Packaging and Filling Machine Operators and Tenders | Operate or tend machines to prepare industrial or consumer products for storage or shipment. Includes cannery workers who pack food products. |
| Emergency Medical Technicians and Paramedics | Assess injuries, administer emergency medical care, and extricate trapped individuals. Transport injured or sick persons to medical facilities. |
| Loan Officers | Evaluate, authorize, or recommend approval of commercial, real estate, or credit loans. Advise borrowers on financial status and payment methods. Includes mortgage loan officers and agents, collection analysts, loan servicing officers, and loan underwriters. |
| Shipping, Receiving, and Traffic Clerks | Verify and maintain records on incoming and outgoing shipments. Prepare items for shipment. Duties include assembling, addressing, stamping, and shipping merchandise or material; receiving, unpacking, verifying and recording incoming merchandise or material; and arranging for the transportation of products. Excludes "Stock Clerks and Order Fillers" (43-5081) and "Weighers, Measurers, Checkers, and Samplers, Recordkeeping" (43-5111). |
| Medical Assistants | Perform administrative and certain clinical duties under the direction of a physician. Administrative duties may include scheduling appointments, maintaining medical records, billing, and coding information for insurance purposes. Clinical duties may include taking and recording vital signs and medical histories, preparing patients for examination, drawing blood, and administering medications as directed by physician. Excludes "Physician Assistants" (29-1071). |
| Security Guards | Guard, patrol, or monitor premises to prevent theft, violence, or infractions of rules. May operate x-ray and metal detector equipment. Excludes "Transportation Security Screeners" (33-9093). |
| Computer Systems Analysts | Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software. |
| Social and Human Service Assistants | Assist in providing client services in a wide variety of fields, such as psychology, rehabilitation, or social work, including support for families. May assist clients in identifying and obtaining available benefits and social and community services. May assist social workers with developing, organizing, and conducting programs to prevent and resolve problems relevant to substance abuse, human relationships, rehabilitation, or dependent care. Excludes "Rehabilitation Counselors" (21-1015), "Psychiatric Technicians" (29-2053), "Personal Care Aides" (39-9021), and "Eligibility Interviewers, Government Programs" (43-4061). |