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# Labor Market Analysis

## Graphic Design



POWERED BY

California Community Colleges

Prepared by the Central Valley/Mother Lode Center of Excellence

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**COVID-19 Statement:** This report includes employment projection data by Lightcast. Lightcast's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

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# Summary

This study conducted by the Central Valley/Mother Lode Center of Excellence examines labor market demand, wages, skills, and postsecondary supply for Graphic Design. Five occupations related to Graphic Design were identified for College of the Sequoias:

- 15-1255, Web and Digital Interface Designers
- 27-1014, Special Effects Artists and Animators
- 27-1024, Graphic Designers
- 43-9031, Desktop Publishers
- 51-5111, Prepress Technicians and Workers

**Key findings**:

- **Occupational demand —** There were 1,251 workers employed in jobs related to Graphic Design in 2021 in the South Central Valley/Southern Mother Lode (SCV/SML) subregion. The largest occupation is graphic designers with 826 workers, a projected growth rate of 3% over the next five years, and 82 annual openings.

- **Wages —** Prepress technicians and workers earn the highest entry-level wage, $18.59/hour in the subregion.

- **Employers —** Employers with the most job postings in the subregion are Cargill Incorporated, Fastsigns, and Fastsigns 62102.

- **Occupational titles —** The most common occupational title in job postings in the subregion is Graphic Designers. The most common job title is Graphic Designer.

- **Skills and certifications —** The top baseline skill is creativity, the top specialized skill is graphic design, and the top software skill is Adobe Photoshop. The most in-demand certification is an Automotive Service Excellence (ASE) Certification.

- **Education —** A postsecondary nondegree award is typically required for prepress technicians and workers. An associate degree is typically required desktop publishers. A bachelor's degree is typically required for graphic designers, web and digital interface designers, and special effects artists and animators.

- **Supply —** Analysis of postsecondary completions shows that on average 3 awards were conferred in the Central Valley/Mother Lode region each year.

Based on a comparison of occupational demand and supply, there is an undersupply of 126 trained workers in the subregion and 225 workers in the region. The Center of Excellence recommends that College of the Sequoias work with the regional directors, the college's advisory board, and local industry in the development of programs to address the shortage of Graphic Design workers in the region.

# Introduction

The Central Valley/Mother Lode Center of Excellence was asked by College of the Sequoias to provide labor market information for Graphic Design. The geographical focus for this report is the South Central Valley/Southern Mother Lode (SCV/SML) subregion, but regional demand and supply data has been included for broader applicability and use. The average living wage for a single adult in the SCV/SML subregion is $11.91/hour.[1] Analysis of the program and occupational data related to Graphic Design resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 15-1255, Web and Digital Interface Designers
- 27-1014, Special Effects Artists and Animators
- 27-1024, Graphic Designers
- 43-9031, Desktop Publishers
- 51-5111, Prepress Technicians and Workers

The occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O*NET OnLine are shown below.

**Web and Digital Interface Designers**
**Job Description:** Design digital user interfaces or websites. Develop and test layouts, interfaces, functionality, and navigation menus to ensure compatibility and usability across browsers or devices. May use web framework applications as well as client-side code and processes. May evaluate web design following web and accessibility standards, and may analyze web use metrics and optimize websites for marketability and search engine ranking. May design and test interfaces that facilitate the human-computer interaction and maximize the usability of digital devices, websites, and software with a focus on aesthetics and design. May create graphics used in websites and manage website content and links.
**Knowledge:** N/A
**Skills:** N/A

**Special Effects Artists and Animators**
**Job Description:** Create special effects or animations using film, video, computers, or other electronic tools and media for use in products, such as computer games, movies, music videos, and commercials.
**Knowledge:** Computers and Electronics, English Language, Design, Communications and Media, Customer and Personal Service
**Skills:** Active Listening, Critical Thinking, Reading Comprehension, Speaking, Active Learning
**Graphic Designers**
**Job Description:** Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.
**Knowledge:** Design, Communication and Media, English Language, Fine Arts, Computers and Electronics
**Skills:** Active Listening, Critical Thinking, Speaking, Reading Comprehension, Active Learning

**Desktop Publishers**
**Job Description:** Format typescript and graphic elements using computer software to produce publication-ready material.
**Knowledge:** Computers and Electronics, Communications and Media, English Language
**Skills:** Critical Thinking, Reading Comprehension, Judgment and Decision Making, Active Learning, Speaking

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[1] The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: https://insightcced.org/tools-metrics/self-sufficiency-standard-tool-for-california/.

**Prepress Technicians and Workers**
**Job Description:** Format and proof text and images submitted by designers and clients into finished pages that can be printed. Includes digital and photo typesetting. May produce printing plates.
**Knowledge:** Computers and Electronics, English Language, Design, Mathematics, Production and Processing
**Skills:** Active Listening, Critical Thinking, Monitoring, Speaking, Time Management

# Occupational Demand

The SCV/SML subregion employed 1,251 workers in Graphic Design occupations in 2021 (Exhibit 1). The largest occupation is graphic designers with 826 workers in 2021. This occupation is projected to grow by 3% over the next five years and has the greatest number of projected annual openings, 82.

**Exhibit 1. Graphic Design employment and occupational projections in the SCV/SML subregion**

| Occupation | 2021 Jobs | 2026 Jobs | 5-Year Change | 5-Year % Change | Annual Openings |
|---|---|---|---|---|---|
| Graphic Designers | 826 | 855 | 29 | 3% | 82 |
| Web and Digital Interface Designers | 197 | 216 | 19 | 10% | 19 |
| Special Effects Artists and Animators | 162 | 157 | (5) | (3%) | 17 |
| Prepress Technicians and Workers | 56 | 54 | (2) | (4%) | 8 |
| Desktop Publishers | <10 | <10 | Insf. Data | Insf. Data | 1 |
| **TOTAL** | **1,251** | **1,291** | **41** | **3%** | **127** |

# Wages

Exhibit 2a shows the hourly wages of the Graphic Design occupations. Prepress technicians and workers earn the highest entry-level wage, $18.59/hour in the subregion[2].Please note 10th and 25th percentiles are considered entry-level wages while 75th and 90th are considered experienced wages, either by gained by long term employment, received extra training, etc.

**Exhibit 2a. Graphic Design hourly wages in the SCV/SML subregion**

| Occupation | Pct. 25 Hourly Earnings | Median Hourly Earnings | Pct. 75 Hourly Earnings |
|---|---|---|---|
| Prepress Technicians and Workers | $18.59 | $22.55 | $26.47 |
| Graphic Designers | $16.01 | $23.26 | $33.79 |
| Web and Digital Interface Designers | $15.60 | $26.73 | $43.44 |
| Special Effects Artists and Animators | $13.35 | $31.32 | $45.27 |

Exhibit 2b shows the average hourly wages for Graphic Design occupations, the average entry-level wage exceeds the average living wage for the South Central Valley/Southern Mother Lode SCV/SML subregion. Please note the average 10th percentile wage does not exceed the average living wage in the subregion.

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[2] Entry-level wages are derived from the 25th percentile.

**Exhibit 2b. graphic design average hourly wages in the SCV/SML subregion**
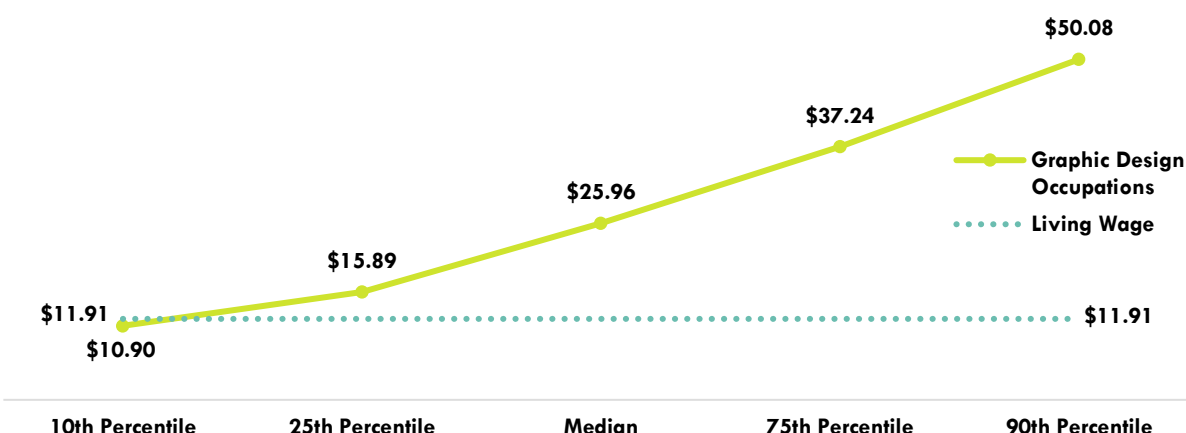


# Job Postings

There were 143 job postings for the five occupations in the SCV/SML subregion from March 2022 to August 2022.[3] The employers with the most job postings are listed in Exhibit 3.

**Exhibit 3. Top employers of Graphic Design by number of job postings**

| Employer | Job Postings | % Job Postings |
|---|---|---|
| Cargill Incorporated | 6 | 5% |
| Fastsigns | 6 | 5% |
| Fastsigns 62102 | 5 | 5% |
| Sinclair Systems International Llc | 4 | 4% |
| Bakersfield Condors | 3 | 3% |
| Pro Screen | 3 | 3% |
| Sinclair Systems International | 3 | 3% |
| Advance Auto Parts Incorporated | 2 | 2% |
| Artistongo | 2 | 2% |
| Beer Monument Works Incorporated | 2 | 2% |

Exhibit 4 shows how job postings for the targeted occupations in the SCV/SML subregion are distributed across four O*NET OnLine occupations. The occupational title Graphic Designers is listed in 94 job postings. Note how this occupational title dominates the job posting results. Common job titles in postings include Graphic Designer in 41 job postings, Scanner in nine job postings, and Pre-Press/Make Ready in eight job postings.

**Exhibit 4. Top occupational titles in job postings for Graphic Design**

| Occupational Title | Job Postings | % of Job Postings |
|---|---|---|
| Graphic Designers | 94 | 66% |
| Prepress Technicians and Workers | 33 | 23% |
| Multimedia Artists and Animators | 14 | 10% |
| Desktop Publishers | 2 | 1% |

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[3] Other than occupation titles and job titles, the categories below can be counted one or multiple times per job posting, and across several areas in a single posting. For example, a skill can be counted in two different skill types, and an employer can indicate more than one education level.

**Salaries**

Exhibit 5 shows the "Market Salaries" for Graphic Design occupations. These are calculated by Burning Glass using a machine learning model built off of millions of job postings every year. This accounts for adjustments based on locations, industry, skills, experience, education requirements, among other variables.

**Exhibit 5. Salaries for Graphic Design occupations**

| Market Salary Percentile | Salary Amount |
|---|---|
| 10th Percentile | $29,846 |
| 25th Percentile | $34,086 |
| 50th Percentile | $38,823 |
| 75th Percentile | $49,839 |
| 90th Percentile | $59,625 |

**Education**

Of the 143 job postings, 71 listed an education level preferred for the positions being filled. Among those, 48% requested high school or vocational training, 45% requested a bachelor's degree, and 17% requested an associate degree (Exhibit 6). A job posting can indicate more than one education level. Hence, the percentages shown in the chart below may total more than 100%.
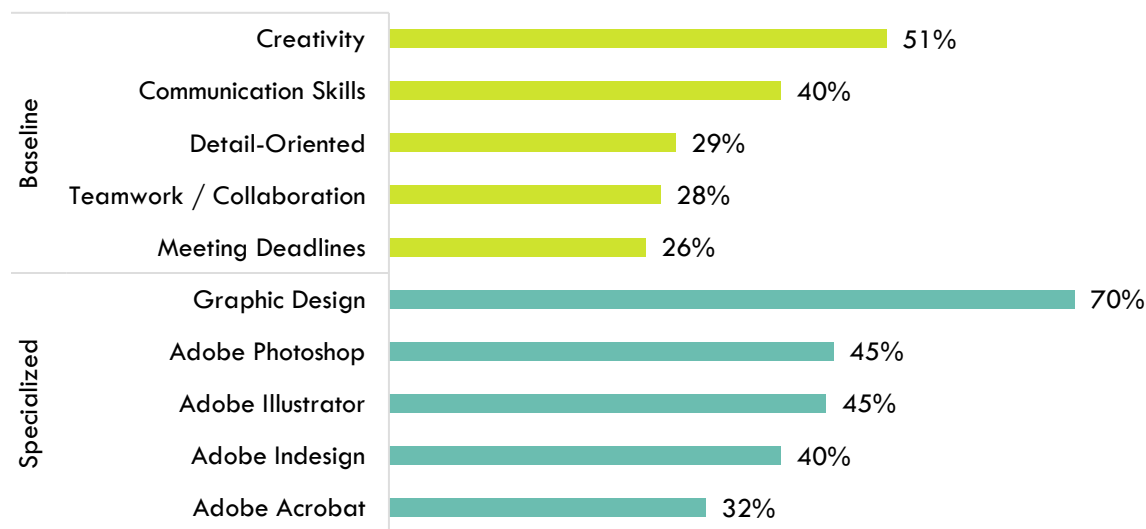
**Exhibit 6. Education levels requested in job postings for Graphic Design**

| Education Level | Job Postings | % of Job Postings |
|---|---|---|
| High school or vocational training | 34 | 48% |
| Bachelor's degree | 32 | 45% |
| Associate's degree | 12 | 17% |
| Master's degree | 3 | 4% |
| Doctoral degree | 1 | 1% |

**Baseline and Specialized Skills**

Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are creativity, 51% of job postings, communication skills, 40%, and detail-oriented, 29%. The top three specialized skills are graphic design, 70% of job postings, Adobe Photoshop, 45%, and Adobe Illustrator, 45%.

**Exhibit 7. In-demand Graphic Design baseline and specialized skills**

| Baseline | |
|---|---|
| Creativity | 51% |
| Communication Skills | 40% |
| Detail-Oriented | 29% |
| Teamwork / Collaboration | 28% |
| Meeting Deadlines | 26% |

| Specialized | |
|---|---|
| Graphic Design | 70% |
| Adobe Photoshop | 45% |
| Adobe Illustrator | 45% |
| Adobe Indesign | 40% |
| Adobe Acrobat | 32% |

**Software Skills**

Analysis also included the software skills most in demand by employers. Adobe Photoshop and Adobe Illustrator were the top two software skills identified in job postings (Exhibit 8).

**Exhibit 8. In-demand Graphic Design software skills**



| Adobe Photoshop | Adobe Illustrator | Adobe Indesign | Adobe Acrobat | Adobe Creative Suite |
|---|---|---|---|---|
| 45% | 45% | 40% | 32% | 30% |
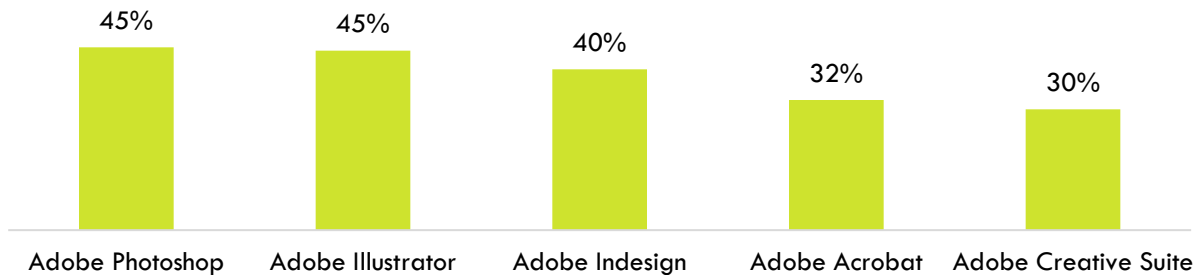
**Certifications**

Of the 143 job postings, 17 contained certification data. Among those, 18% indicated a need for an Automotive Service Excellence (ASE) Certification. The next top certifications are Cdl Class C and certified medical assistant (Exhibit 9). (Due to the low number of job postings with certifications listed, the chart below may not be representative of the full sample.)

**Exhibit 9. Top Graphic Design certifications requested in job postings**



| Automotive Service Excellence (ASE) Certification | Cdl Class C | Certified Medical Assistant | Bilingual Certification | Computer Skills Certification |
|---|---|---|---|---|
| 18% | 18% | 12% | 6% | 6% |
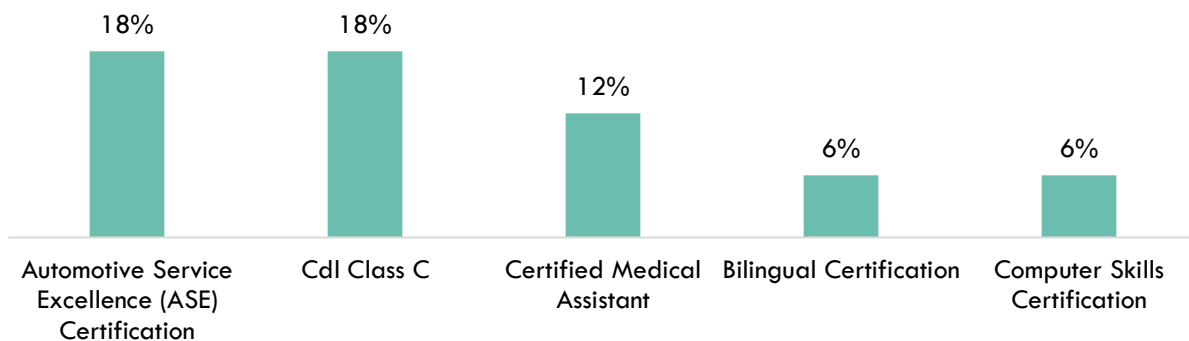
# Education, Work Experience & Training

A postsecondary nondegree award is typically required for prepress technicians and workers. An associate degree is typically required desktop publishers. A bachelor's degree is typically required for graphic designers, web and digital interface designers, and special effects artists and animators (Exhibit 10).

**Exhibit 10. Education, work experience, training, and Current Population Survey results for Graphic Design occupations[4]**

| Occupation | Typical Entry-level Education | Work Experience Required | Typical On-The-Job Training | CPS |
|---|---|---|---|---|
| Graphic Designers | Bachelor's degree | None | None | 26.5% |
| Web and Digital Interface Designers | Bachelor's degree | None | None | 23.4% |
| Special Effects Artists and Animators | Bachelor's degree | None | None | 27.7% |
| Prepress Technicians and Workers | Postsecondary nondegree award | None | None | 38.2% |
| Desktop Publishers | Associate's degree | None | Short-term | 40.7% |

# Supply

Analysis of program data from the Integrated Postsecondary Education Data System (IPEDS) included the TOP code and title: 061400 - Digital Media. Analysis of the last three years of data shows that, on average, 3 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

**Exhibit 11. Postsecondary supply for Graphic Design occupations in the region**

| TOP/CIP Code- Title | College | Associate Degree | Certificate 16 < 30 Semester Units | Certificate 18 < 30 Semester Units | Certificate 6 < 18 Semester Units | Subtotal |
|---|---|---|---|---|---|---|
| **061400 - Digital Media** | Columbia | 2 | 0 | 0 | | 2 |
| | Merced | 0 | | | | 0 |
| | Sequoias | | | | 0 | 0 |
| **TOTAL** | | **2** | **0** | **0** | **0** | **3** |

There is an undersupply of 126 Graphic Design workers in the SCV/SML subregion and 225 workers in the region (Exhibit 12).

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[4] "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, https://www.bls.gov/cps/.

**Exhibit 12. Graphic Design workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill gap in the SCV/SML subregion and region**
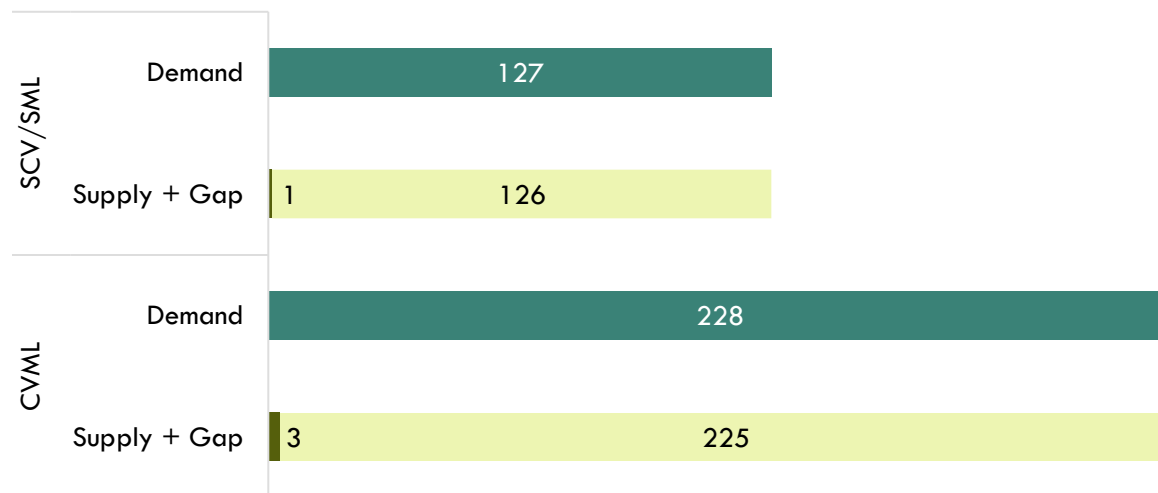


# Student Outcomes

Exhibit 13 summarizes employment and wage outcomes from the California Community College Chancellor's Cal-PASS Plus LaunchBoard for the TOP code related to Graphic Design. Of note 58% of digital media students attained a living wage.

**Exhibit 13. Subregional metrics for the TOP code related to Graphic Design**

| Metric | Digital Media 061400 |
|---|---|
| Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status | * |
| Number of Students Who Transferred | * |
| Job Closely Related to Field of Study | * |
| Median Change in Earnings | * |
| Attained a Living Wage | 58% |
| * denotes data not available. | |

# Conclusion

The entry-level wages of the five occupations exceed the SCV/SML subregion's average living wage. There were 143 job postings in the past six months for occupations related to Graphic Design in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is creativity, and the top specialized skill is graphic design.
- The top software skill is Adobe Photoshop.
- The top certification is an Automotive Service Excellence (ASE) Certification.

There is an undersupply of trained workers, a shortage of 126 in the SCV/SML subregion and 225 in the region.

# Recommendation

Based on these findings, it is recommended that College of the Sequoias work with the regional directors, the college's advisory board, and local industry in the development of programs to address the shortage of Graphic Design workers in the region.

# Appendix A: Methodology & Data Sources

## Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor's Office Management Information Systems Data Mart and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

| Data Type | Source |
|---|---|
| Labor Market Information/Population Estimates and Projections/Educational Attainment | Economic Modeling Specialists, Intl. (Lightcast). Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast 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 Lightcast earnings by industry: economicmodeling.com. |
| Typical Education Level and On-the-job Training | Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: https://www.bls.gov/emp/tables/educational-attainment.htm. |
| Labor Force, Employment and Unemployment Estimates | California Employment Development Department, Labor Market Information Division: labormarketinfo.edd.ca.gov. |
| Job Posting and Skills Data | Burning Glass: burning-glass.com/. |
| Additional Education Requirements/ Employer Preferences | The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: onetonline.org. |

## Key Terms and Concepts

**Annual Job Openings:** Annual openings are calculated by dividing the number of years in the projection period by total job openings.

**Education Attainment Level:** The highest education attainment level of workers age 25 years or older.

**Employment Estimate:** The total number of workers currently employed.

**Employment Projections:** Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (Lightcast) formula that includes historical employment and economic indicators along with national, state and local trends.

**Living Wage:** The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

**Occupation:** An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

**Percent Change:** Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

**Replacements:** Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

**Total Job Openings (New + Replacements):** Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

**Typical Education Requirement**: represents the typical education level most workers need to enter an occupation.

**Typical On-The-Job Training**: indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.