

LABOR MARKET ANALYSIS

FOR PROGRAM RECOMMENDATION



C·O·E

CENTERS OF EXCELLENCE
FOR LABOR MARKET RESEARCH

MEDICAL LABORATORY TECHNOLOGY IN THE GREATER SACRAMENTO REGION

North (Greater Sacramento)
Center of Excellence

DECEMBER 2022

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SUMMARY

The North (Greater Sacramento) of Excellence for Labor Market Research prepared this report to provide a labor market analysis of educational supply and occupational demand for middle-skilled career pathways in the North (Greater Sacramento) subregion. This report aims to determine if demand in the local labor market is unmet by the supply from existing community college programs and other postsecondary training providers.

This report primarily focuses on training that leads to jobs in middle-skilled occupations - jobs that typically require education beyond a high school diploma but less than a bachelor's degree - but may include higher-skilled occupations for training pathways that lead to a bachelor's degree. Lowered skilled occupations are rarely considered in this analysis due to the lessened barriers for entry-level work, such as no formal education and on-the-job training requirements.

Key findings include:

- The North (Greater Sacramento) subregion held 1,975 medical laboratory technology jobs in 2021. These jobs are projected to increase by 7% over the next five years, adding 135 new jobs to the subregion by 2026.
- Over the next five years, medical laboratory technology jobs are projected to have 156 annual openings in the North (Greater Sacramento) subregion.
- Analysis of wage data shows that medical laboratory technology occupations earn \$9 more than the single adult living wage of \$14.53 per hour.
- Folsom Lake conferred an annual average of 10 associate degrees in its medical laboratory technician program over the last three academic years (2018-19 through 2020-21).

Recommendations include:

- The North (Greater Sacramento) Center of Excellence recommends moving forward with new program development and modifications of existing programs.

INTRODUCTION

The North (Greater Sacramento) Center of Excellence (COE) was asked to provide labor market information for a proposed program at a regional community college. This report focuses on the following Standard Occupational Classification (SOC) occupations and codes:

These middle-skill occupations require more education and training beyond a high school diploma but less than a four-year degree:

- Clinical Laboratory Technologists and Technicians (29-2018), which includes:
 - Medical and Clinical Laboratory Technicians (29-2012)
 - Medical and Clinical Laboratory Technologists (29-2011)

A review of related programs revealed the following Taxonomy of Programs (TOP) title(s) and code(s) are appropriate for inclusion in this report:

- Medical Laboratory Technology (1205.00)

The corresponding Classification of Instructional Program (CIP) title(s) and code(s) are:

- Clinical/Medical Laboratory Technician (51.1004)

OCCUPATIONAL DEMAND

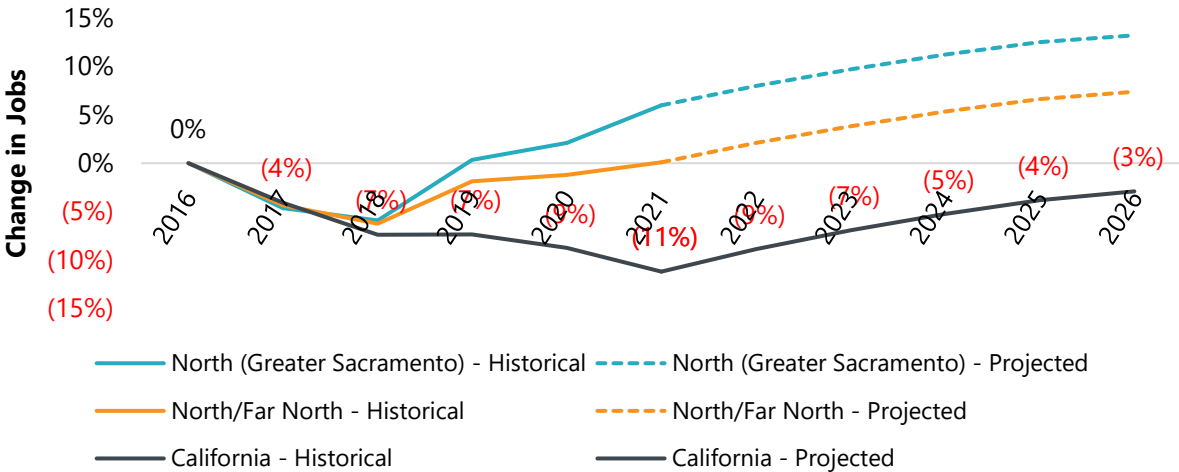
Exhibit 1 summarizes the five-year projected job growth for middle-skill and high-skill occupations in the North, North/Far North, and California.

Exhibit 1. Employment and projected demand, 2021-2026

Occupation	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	2021-2026 Annual Openings
Clinical Laboratory Technologists and Technicians	1,975	2,110	135	7%	156
North (Greater Sacramento)	1,975	2,110	135	7%	156
Clinical Laboratory Technologists and Technicians	2,389	2,563	174	7%	191
North/Far North	2,389	2,563	174	7%	191
Clinical Laboratory Technologists and Technicians	27,148	29,683	2,535	9%	2,300
California	27,148	29,683	2,535	9%	2,300

Exhibit 2 compares the percent change in jobs between 2016 through 2021 and the projected changes through 2026. The rate of change is indexed to the total number of jobs in 2016.

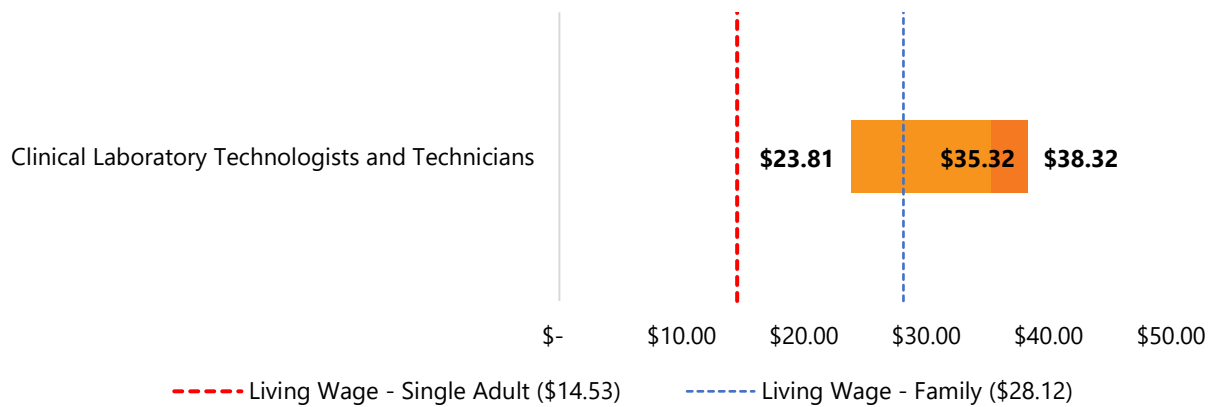
Exhibit 2. Changes in employment, 2016-2026



WAGES

Exhibit 3 compares the entry-level, median, and experienced wages for the selected occupations to the North (Greater Sacramento) living wage¹ for a single adult (\$14.53 per hour) and a small family² (\$28.12 per hour).

Exhibit 3. Comparison of wages by occupation, 2021



JOB POSTINGS

This section analyzes recent data from online job postings (real-time LMI). Online job postings may provide additional insight into recent changes in the labor market that are not captured by historical trends.

The North COE identified 1,097 online job postings for the selected occupations in the Greater Sacramento subregion. Job posting data comes from Lightcast (formerly Emsi Burning Glass Labor) and represents new listings posted online within the last year, from November 1, 2021, to October 31, 2022.

Occupations and Job Titles

Exhibit 4 details the number of online job postings for the selected occupations.

Exhibit 4. Number of job postings by occupation

¹ Living wage is defined as the level of income a single adult with no children must earn to meet basic needs, including food, housing, transportation, healthcare, taxes, and other miscellaneous basic needs. Please note that the 25th-percentile and 75th-percentile hourly wages are used as proxy for entry-level and experienced-level wages.

² A small family is defined as a single adult and one school aged child (between the ages of 5 and 12 years).

Occupation	Job Postings	Share of Job Postings
Clinical Laboratory Technologists and Technicians	1,097	100%
Total Job Postings	1,097	100%

Exhibit 5 shows the top 10 job titles with the most job postings and the share. All job postings included a job title.

Exhibit 5. Top jobs titles

Job Title	Job Postings	Share of Job Postings
Laboratory Technicians	206	19%
Laboratory Assistants	151	14%
Medical Laboratory Technicians	83	8%
Laboratory Analysts	34	3%
Cytotechnologists	34	3%
Hospital Laboratory Technicians	25	2%
Clinical Laboratory Assistants	20	2%
Clinical Laboratory Scientists	20	2%
Histotechnologists	20	2%
Clinical Technicians	19	2%

Employers

Exhibit 6 shows the top 10 employers with the most job postings for the selected occupations.

Exhibit 6. Employers with the most job postings

Employer	Job Postings	Share of Job Postings
University of California, Davis	192	17%
UC Davis Health	57	5%

Employer	Job Postings	Share of Job Postings
Sutter Health	41	4%
Interpath Laboratory	27	2%
Quest Diagnostics	23	2%
Dignity Health	20	2%
Akua Behavioral Health	16	1%
Eurofins	14	1%
IDEXX	13	1%
Aya Healthcare	12	1%

Certifications, Skills, and Experience

Exhibit 7 shows the most relevant certifications requested by employers for the selected occupations.

Exhibit 7. Most in-demand certifications

Certification	Job Postings	Share of Job Postings
American Society For Clinical Pathology (ASCP) Certification	124	11%
Certified Phlebotomy Technician	46	4%
American Medical Technologists (AMT) Certification	35	3%
Certified Cytotechnologist	16	1%
Phlebotomy Certification	11	1%

Exhibit 8 shows the top 10 skills across three categories for the studied occupations: specialized, human-centered, and technical skills.

Exhibit 8. Most in-demand specialized skills

Top 10 Specialized Skills	Top 10 Human-Centered Skills	Top 10 Technical Skills
Medical Laboratory	Communications	Microsoft Office
Biology	Detail Oriented	Microsoft Excel
Chemistry	Research	Microsoft Word
Laboratory Equipment	Customer Service	Microsoft PowerPoint
Laboratory Testing	Quality Control	Human Resources Information System (HRIS)
Specimen Processing	Writing	Medical Software
Laboratory Experience	Operations	Microsoft Outlook
Pathology	Management	Database Application
Clinical Laboratory Science	Troubleshooting (Problem Solving)	SAP Applications
Microbiology	Problem Solving	Epic EHR

Exhibit 9 shows employers' minimum level of education for job postings for the selected occupations.

Exhibit 9. Employer-preferred minimum education levels

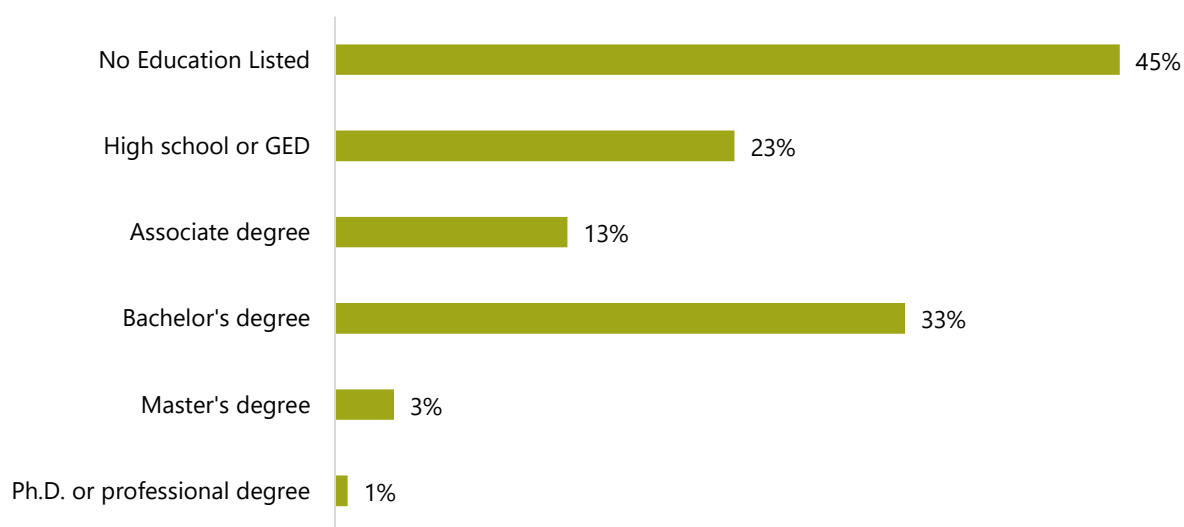
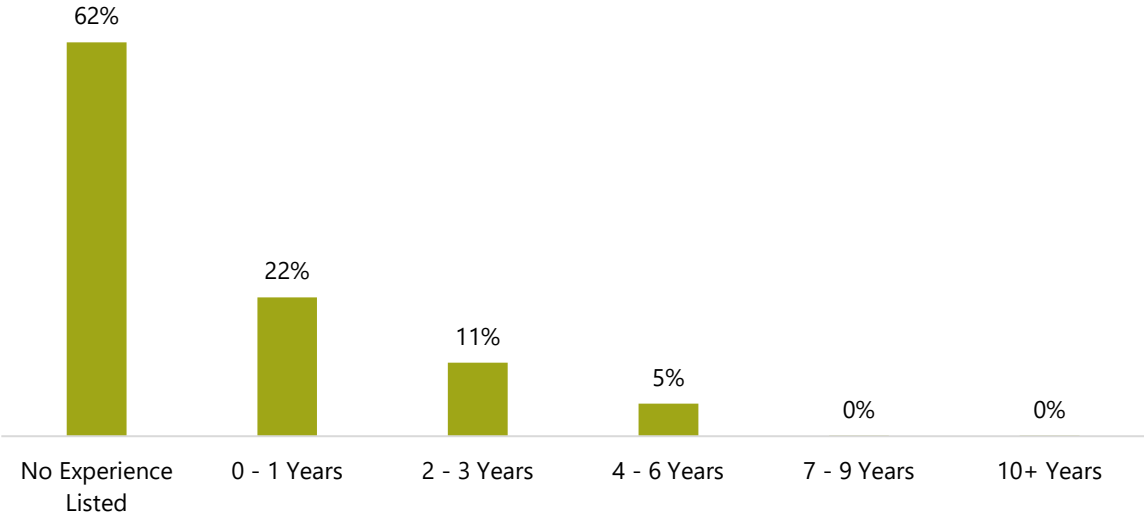


Exhibit 10 shows the experience levels required by employers for job postings for the selected occupations.

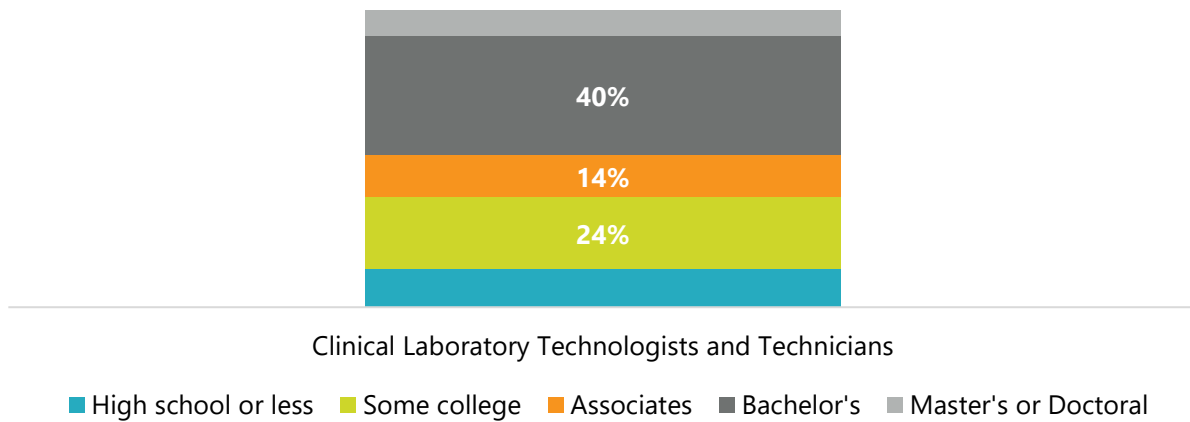
Exhibit 10. Employer-preferred experience levels



EDUCATION AND TRAINING

The U.S. Census Bureau collects education data from workers employed in occupations. Exhibit 11 shows the state-level educational attainment of the current workforce in the selected occupations.

Exhibit 11. California worker educational attainment for selected occupations, 2019



The Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which the BLS publishes projections data. Exhibit 12 shows the selected occupations' entry-level job requirements.

Exhibit 12. Typical education, work experience, and on-the-job training requirements

Occupation	Typical Entry-level Education	Work Experience Required	On-the-job Training Required
Clinical Laboratory Technologists and Technicians	Bachelor's degree	None	None

EDUCATIONAL SUPPLY

Educational supply for an occupation can be estimated by analyzing the number of awards issued in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes. Exhibit 13 shows the TOP and CIP codes for educational programs related to the selected occupations.

Exhibit 13. TOP and CIP codes for training programs related to the selected occupations

TOP Programs and Codes	Aligned CIP Programs and Codes
Medical Laboratory Technology (1205.00)	Clinical/Medical Laboratory Technician (51.1004)

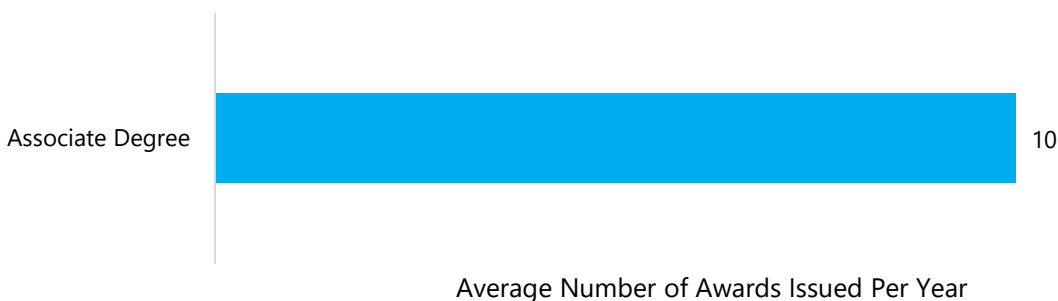
Community College Supply

Exhibits 14 and 15 compare the average number of certificates and degrees from selected community college programs over the last three academic years.

Exhibit 14. Annual average community college awards by program, 2018-19 through 2020-21

Program - TOP Code	College	Annual Awards 2018-19	Annual Awards 2019-20	Annual Awards 2020-21	3-Yr Annual Awards Average
Medical Laboratory Technology (1205.00)	Folsom Lake	14	1	14	10
	Grand Total	14	1	14	10

Exhibit 15. Annual average community college awards by type, 2018-19 through 2020-21



FINDINGS

- This report focuses on two occupations in the medical laboratory technology career pathway: medical and clinical laboratory technicians and medical and clinical laboratory technologists. Occupational demand data for these occupations is contained under a singular occupation: clinical laboratory technologists and technicians.
- The North (Greater Sacramento) subregion held 1,975 medical laboratory technology jobs in 2021. These jobs are projected to increase by 7% over the next five years, adding 135 new jobs to the subregion by 2026.
- Medical laboratory technology jobs are projected to grow slower in the North (Greater Sacramento) subregion than in California.
- Over the next five years, medical laboratory technology jobs are projected to have 156 annual openings in the North (Greater Sacramento) subregion. There will be 35 job openings in the Far North, totaling 191 annual openings across the North Far North region.
- Analysis of wage data shows that medical laboratory technology occupations earn \$9 more than the single adult living wage of \$14.53 per hour. The median hourly wage of \$35.32 is above the living wage needed to sustain a small family.
- According to real-time labor market information, there were about 1,097 online postings for medical laboratory technology jobs between November 1, 2021, and October 31, 2022. Job titles run the gamut, from lab assistants and technicians to clinical lab scientists and cytotechnologists. At least 45% of the job postings were for laboratory assistants and technicians.
- Although the typical entry-level education for medical laboratory technology occupations is a bachelor's degree, approximately 38% of incumbent workers in the profession have an educational attainment level consistent with community college offerings (some college or associate degrees).
- Only one training provider in the North Far North region offers training directly related to medical laboratory technology. Folsom Lake conferred an annual average of 10 associate degrees in its medical laboratory technician program over the last three academic years (2018-19 through 2020-21).

RECOMMENDATIONS

- Based on a three-year average of annual awards in the North (Greater Sacramento) subregion medical laboratory technology programs and projected yearly openings, the supply gap analysis shows that the region seems to have room for additional training.
 - Community colleges and other postsecondary training providers issued an average of 10 awards over the last three years.
 - There are 156 projected annual openings for medical laboratory technology jobs.
- The North (Greater Sacramento) Center of Excellence recommends moving forward with the program.

New Program Recommendation		
Move forward with the new program	Proceed with caution	A new program is not recommended
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Program Modification	
Move forward with program modifications	Program modifications are not recommended
<input checked="" type="checkbox"/>	<input type="checkbox"/>

APPENDIX A. METHODOLOGY AND SOURCES

This report identified Occupations using the Center of Excellence TOP-to-CIP-to-SOC crosswalk and O*Net OnLine. This report's findings were determined using labor market data from the Bureau of Labor Statistics (BLS), U.S. Census Bureau data from Emsi, and jobs posting data from Burning Glass.

Lightcast (Formerly EMSI/Burning Glass) 2022.3; QCEW Employees, Non-QCEW Employees, and Self-Employed. <https://www.economicmodeling.com/>. *Note: EMSI occupational 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).*

Integrated Postsecondary Education Data System (IPEDS). National Center for Education Statistics. U.S. Department of Education. <https://nces.ed.gov/ipeds/>.

Labor Market Information Division. California Employment Development Department. <https://labormarketinfo.edd.ca.gov/>.

Management Information Systems (MIS) Data Mart. California Community Colleges Chancellor's Office. <https://datamart.cccco.edu/>.

O*NET OnLine. U.S. Department of Labor/Employment and Training Administration (DOL ETA). <https://www.onetonline.org/>.

Public Use Microdata Sample (PUMS). U.S. Census Bureau American Community Survey (ACS). <https://www.census.gov/programs-surveys/acs/microdata.html>

Self-Sufficiency Standard Tool for California. The University of Washington. <http://www.selfsufficiencystandard.org/>

"Taxonomy of Programs." California Community Colleges Chancellor's Office. June 2012, 6th Edition. <https://www.cccco.edu/-/media/CCCCO-Website/About-Us/Divisions/Educational-Services-and-Support/Academic-Affairs/What-we-do/Curriculum-and-Instruction-Unit/Files/TOPmanual6200909corrected12513pdf.ashx>

"TOP-CIP-SOC Crosswalk." Centers of Excellence for Labor Market Research. June 2021 Edition. <http://coecc.net/>

APPENDIX B. GLOSSARY OF KEY TERMS

Key Terms	Definition
Occupation	Occupation refers to professions, or careers, in the workforce. Occupations differ from jobs in that jobs show the number of positions held in a given occupation.
Jobs	<p>A job is any position where a worker provides labor for monetary compensation.</p> <p>Job numbers include employees (those who work for businesses) and proprietors (those who work for themselves). Full- and part-time jobs are included and counted equally (i.e., not adjusted to full-time equivalents). Data for jobs, or employment, are annual averages.</p>
Job Change	Job change is the net increase or decrease of jobs over a given timeframe.
Job Openings	<p>Job openings are the projected number of positions available for workers entering an occupation.</p> <p>Openings include growth and replacement jobs. Growth jobs are the positive change in the total number of workers employed. Replacement jobs are the estimates of new workers needed to replace workers permanently leaving the occupation.</p>
Wages	Wages, or compensation, show workers' percentile and average earnings in a given occupation. The 25th-percentile and 75th-percentile hourly wages are used as a proxy for entry-level and experienced-level wages.
Living Wage	The living wage is the level of income a single adult with no children must earn to meet basic needs. The living wage is calculated using basic levels of allowances for food, housing, transportation, healthcare, taxes, and other miscellaneous basic needs.
Educational Attainment	Educational attainment is the level of education achieved by workers in a given occupation. The data includes workers aged 25 years and older.
Typical Entry-level Education	The education level generally required for employment in an occupation. It may differ from the actual educational levels attained by workers in any given occupation.
Work Experience Required	The level of prior experience a worker needs to enter a job in a given occupation.
On-the-job Training Required	The level of on-the-job training a worker needs to obtain competency in a given occupation.
Awards	Awards are the number of certificates and degrees conferred for a specific course of study in a given year. Awards counts "papers" and, as a result, may be greater than the actual number of students who complete a program.

COVID-19 Statement: This report includes employment projection data by EMSI. EMSI'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.

Important Disclaimer: All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings; however, neither the Centers of Excellence, COE host District, nor California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges or their representatives based upon components or recommendations contained in this study.

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