

May 2020

Labor Market Analysis

OSHA



California
Community
Colleges



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Prepared by the Central Valley/Mother Lode Center of Excellence

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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.

If for any reason this document is not accessible or if you have specific needs for readability, please contact us and we will do our utmost to accommodate you with a modified version. To make a request, contact Nora Seronello by phone at (209) 575-6894 or by email seronellon@mjc.edu.

Summary

Please note the COVID-19 statement on page 2 when considering this report's findings.

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

- 29-9011, Occupational Health and Safety Specialists
- 29-9012, Occupational Health and Safety Technicians

Key findings:

- **Occupational demand** — More than 740 workers were employed in jobs related to OSHA in 2019 in the South Central Valley/Southern Mother Lode (SCV/SML) subregion. The largest occupation is occupational health and safety specialists with 557 workers in 2019, a projected growth rate of 6% over the next five years, and 39 annual openings.
- **Wages** — Occupational health and safety specialists earn the highest entry-level wages of \$28.36/hour in the subregion and \$27.17/hour in the region.
- **Employers** — Employers with the most job postings in the subregion are California State University, Flatiron, and McCarthy Building.
- **Occupational titles** — The most common occupational title in job postings in the subregion is occupational health and safety specialists. The most common job title is safety coordinator.
- **Skills and certifications** — The top baseline skill is communication, the top specialized skill is occupational health and safety, and the top software skill is Microsoft Office. The most in-demand certification is a Certified Safety Professional.
- **Education** — A bachelor's degree is typically required for occupational health and safety specialists, and a high school diploma with moderate-term on-the-job training is typically required for occupational health and safety technicians.
- **Supply** — Analysis of postsecondary completions in the region shows that on average 17 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 50 trained workers in the subregion and 57 workers in the region. The Center of Excellence recommends that Bakersfield College work with the Energy, Construction and Utilities Regional Director, the college's advisory board, and local industry in the expansion of programs to address the shortage of OSHA workers in the region.

Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Bakersfield College to provide labor market information for OSHA. Review of the Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP) found the following program is appropriate for this analysis:

- TOP Industrial and Occupational Safety and Health-095670

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 South Central Valley/Southern Mother Lode (SCV/SML) subregion is \$10.30/hour.¹ Analysis of the program and occupational data related to OSHA resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 29-9011, Occupational Health and Safety Specialists
- 29-9012, Occupational Health and Safety Technicians

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.

Occupational Health and Safety Specialists

Job Description: Review, evaluate, and analyze work environments and design programs and procedures to control, eliminate, and prevent disease or injury caused by chemical, physical, and biological agents or ergonomic factors. May conduct inspections and enforce adherence to laws and regulations governing the health and safety of individuals. May be employed in the public or private sector. Includes environmental protection officers.

Knowledge: Education and Training, English Language, Chemistry, Public Safety and Security, Law and Government

Skills: Speaking, Active Listening, Complex Problem Solving, Critical Thinking, Reading Comprehension

Occupational Health and Safety Technicians

Job Description: Collect data on work environments for analysis by occupational health and safety specialists. Implement and conduct evaluation of programs designed to limit chemical, physical, biological, and ergonomic risks to workers.

Knowledge: Education and Training, English Language, Customer and Personal Service, Public Safety and Security, Chemistry

Skills: Active Listening, Critical Thinking, Reading Comprehension, Speaking, Writing

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://insightccd.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

Occupational Demand

The South Central Valley/Southern Mother Lode subregion employed 743 workers in OSHA occupations in 2019 (Exhibit 1). The largest occupation is occupational health and safety specialists with 557 workers in 2019. This occupation is projected to grow by 6% over the next five years and has the greatest number of projected annual openings, 39.

Exhibit 1. OSHA employment and occupational projections in the SCV/SML subregion

Occupation	2019 Jobs	2024 Jobs	5-Year Change	5-Year % Change	Annual Openings
Occupational Health and Safety Specialists	557	590	33	6%	39
Occupational Health and Safety Technicians	186	189	3	2%	12
Total	743	779	36	8%	50

Wages

Exhibit 2 compares the entry-level and experienced wages of the OSHA occupations. Occupational health and safety specialists earn the highest entry-level wages of \$28.36/hour in the subregion and \$27.17/hour in the region.

Exhibit 2. Entry-level and experienced wage comparison in the SCV/SML subregion and region



Job Postings

There were 215 job postings for the two occupations in the SCV/SML subregion from November 2019 to April 2020. The employers with the most job postings are listed in Exhibit 3.

Exhibit 3. Top employers of OSHA by number of job postings

Employer	Job Postings	% of Job Postings
California State University	5	3%
Flatiron	4	2%
Mccarthy Building	4	2%
Aera Energy Llc	3	2%
I Impact Solutions, Llc	3	2%
Pacific Gas and Electric Company	3	2%
Professional Management Enterprises, Inc	3	2%
Aera Energy Services Company	2	1%
Ag Wise Incorporated	2	1%
Bolthouse Farms	2	1%

Exhibit 4 shows how job postings for the targeted occupations in the SCV/SML subregion are distributed across two O*NET OnLine occupations. The occupational title occupational health and safety specialists is listed in 154 job postings, followed by occupational health and safety technicians, 61. Note how postings for occupational health and safety specialists dominate the results. Common job titles in postings include safety coordinator, 42 job postings, safety specialist, 42, and safety manager, 36.

Exhibit 4. Top occupational titles in job postings for OSHA

Occupational Title	Job Postings	% of Job Postings
Occupational Health and Safety Specialists	154	72%
Occupational Health and Safety Technicians	61	28%

Salaries

Exhibit 5 shows the “Market Salaries” for OSHA occupations that are calculated by Burning Glass which uses a machine learning model built off of millions of job postings every year, and accounts for adjustments based on locations, industry, skills, experience, education requirements, among other variables.

Exhibit 5. Salaries for OSHA

Market Salary Percentile	Salary Amount
10th Percentile	\$39,305
25th Percentile	\$45,526
50th Percentile	\$59,174
75th Percentile	\$74,557
90th Percentile	\$88,679

Education

Of the 215 job postings, 150 listed an education level preferred for the positions being filled. Among those, 84% requested a bachelor's degree, 22% requested a high school diploma or vocational training, and 14% requested a master's degree (Exhibit 6).

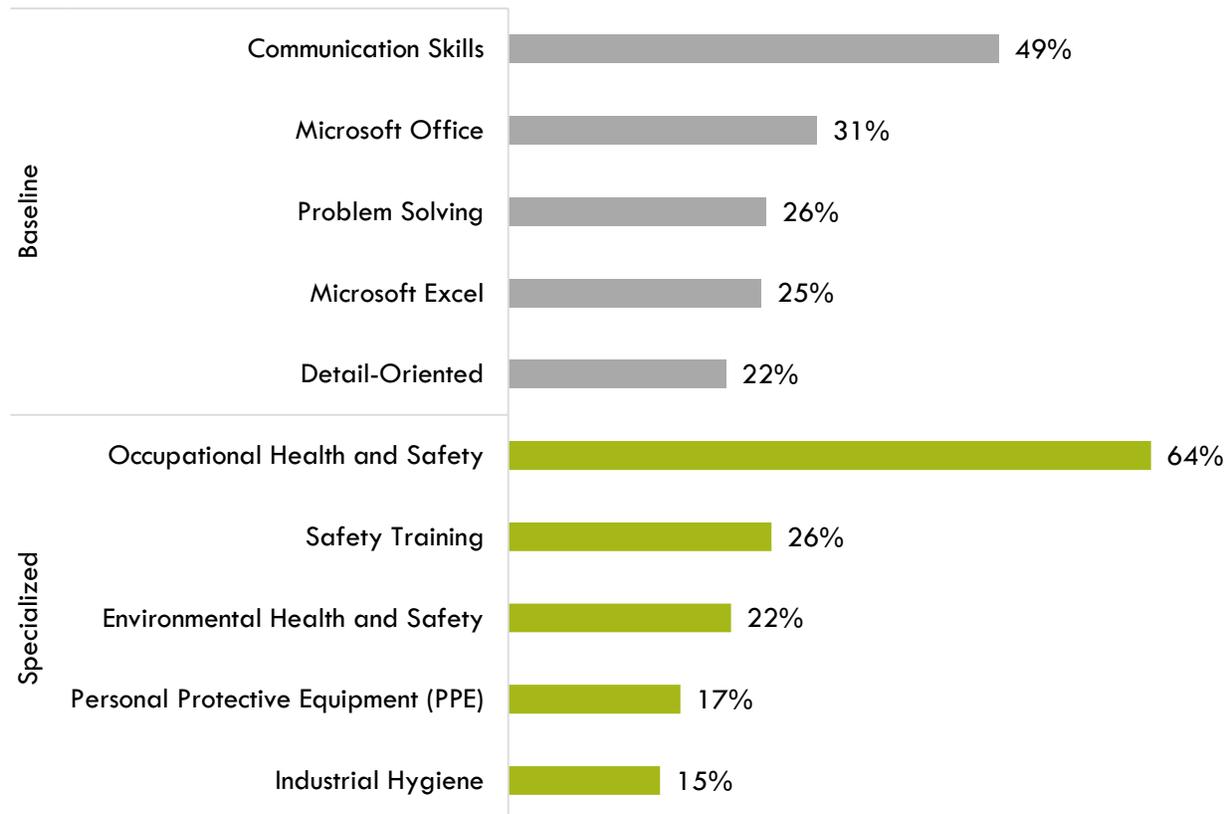
Exhibit 6. Education levels requested in job postings for OSHA

Education level	% of Job Postings
Bachelor's degree	84%
High school or vocational training	22%
Master's degree	14%
Associate degree	7%
Doctoral degree	4%

Baseline and Specialized Skills

Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are communication, 49% of job postings, Microsoft Office, 31%, and problem solving, 26%. The top three specialized skills are occupational health and safety, 64% of job postings, safety training, 26%, and environmental health and safety, 22%.

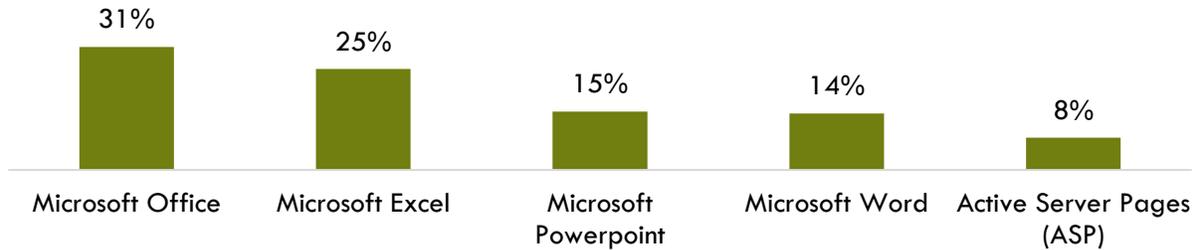
Exhibit 7. In-demand OSHA baseline and specialized skills



Software Skills

Analysis also included the software skills most in demand by employers. Microsoft Office and Microsoft Excel rank first and second (Exhibit 8).

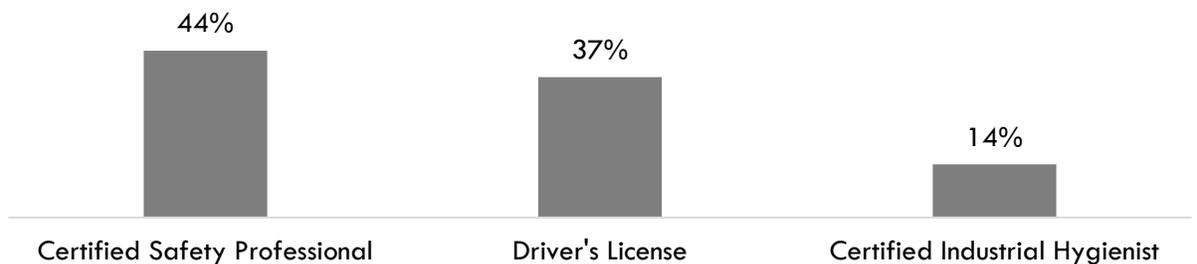
Exhibit 8. In-demand OSHA software skills



Certifications

Of the 215 job postings, 101 contained certification data. Of those, 44% indicated a need for a Certified Safety Professional. The next top certifications are driver’s license and Certified Industrial Hygienist (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 OSHA certifications requested in job postings



Education, Work Experience & Training

A bachelor’s degree is typically required for occupational health and safety specialists, and a high school diploma with moderate-term on-the-job training is typically required for occupational health and safety technicians (Exhibit 10). An occupation with a bachelor’s degree as its typical entry-level education is considered middle-skill when one-third or more of current workers have completed some college up to an associate degree as their highest level of education. OHS specialists have a CPS percentage of 22.7%.

Exhibit 10. Education, work experience, training and Current Population Survey results for OSHA occupations²

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS
Occupational Health and Safety Specialists	Bachelor's degree	None	None	22.7%
Occupational Health and Safety Technicians	High school diploma or equivalent	None	Moderate-term	22.7%

² “Labor Force Statistics from the Current Population Survey,” Bureau of Labor Statistics, <https://www.bls.gov/cps/>.

Supply

Analysis of program data from the California Community Colleges Chancellor’s Office Data Mart included the TOP code: Industrial and Occupational Safety and Health-095670. Analysis of the last three years of TOP code data shows that, on average, 17 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

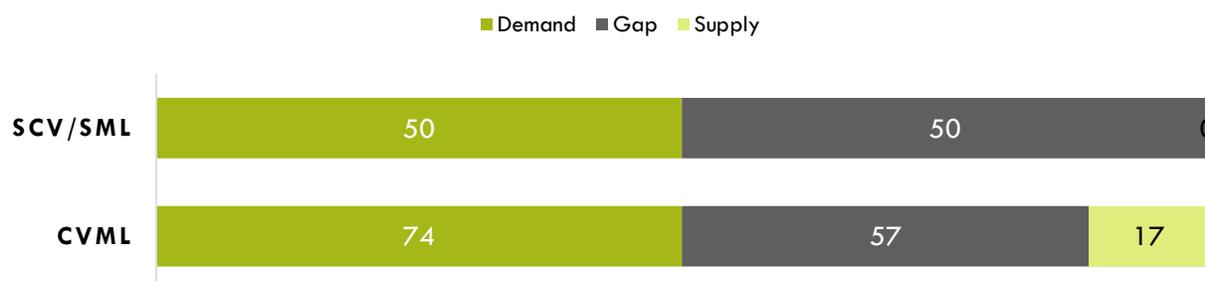
Exhibit 11. Postsecondary supply for OSHA occupations in the region

TOP Title-Code	College	Certificates	Degree	Subtotal
Industrial and Occupational Safety and Health-095670	Taft	8	9	17
Total		8	9	17

Gap Analysis

There is an undersupply of 50 OSHA workers in the SCV/SML subregion and 57 workers in the region (Exhibit 12).

Exhibit 12. OSHA workforce annual demand and supply 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 codes related to OSHA. Across the region, 10 industrial and occupational safety and health students received a degree/certificate or attained apprenticeship journey status. More than 50% of students attained a living wage, but only 24% of students reported a median change in earning.

Exhibit 13. Regional metrics for the TOP code related to OSHA

Metric	Industrial & Occupational Safety & Health-095670
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	10
Number of Students Who Transferred	*
Job Closely Related to Field of Study	83%
Median Change in Earnings	24%
Attained a Living Wage	54%
* denotes data not available.	

Conclusion

The entry-level wages of the two occupations exceed the SCV/SML subregion's average living wage. There were 215 job postings in the past six months for occupations related to OSHA in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is communication, and the top specialized skill is occupational health and safety.
- The top software skill is Microsoft Office.
- The top certification is a Certified Safety Professional.

There is an undersupply of trained workers, a shortage of 50 in the SCV/SML subregion and 57 in the region.

Recommendation

Based on these findings, it is recommended that Bakersfield College work with the Energy, Construction and Utilities Regional Director, the college's advisory board, and local industry in the expansion of programs to address the shortage of OSHA 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. (EMSI). 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). Occupational wage estimates also affected by county-level EMSI 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. (EMSI) 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.