February 2021

Labor Market Analysis

Culinary Arts

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.

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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 culinary arts. Eight occupations related to culinary arts were identified for Merced College:

- 35-2014, Cooks, Restaurant
- 35-1012, First-Line Supervisors of Food Preparation and Serving Workers
- 11-9051, Food Service Managers
- 35-2012, Cooks, Institution and Cafeteria
- 35-1011, Chefs and Head Cooks
- 51-3011, Bakers
- 35-2019, Cooks, All Other
- 35-2013, Cooks, Private Household

Key findings:
- **Occupational demand —** Nearly 11,200 workers were employed in jobs related to culinary arts in 2019 in the North Central Valley/Northern Mother Lode (NCV/NML) subregion. The largest occupation is cooks, restaurant with 3,873 workers in 2019, a projected growth rate of 1% over the next five years, and 557 annual openings.
- **Wages —** Food service managers earn the highest entry-level wage, $15.41/hour in the subregion and $15.68 in the region. Subregional wage data was not available for cooks, private household.
- **Employers —** Employers with the most job postings in the subregion are Starbucks Coffee Company, Taco Bell, and Panera Bread.
- **Occupational titles —** The most common occupational title in job postings in the subregion is first-line supervisors of food preparation and serving workers. The most common job title is cook.
- **Skills and certifications —** The top baseline skill is communication, the top specialized skill is cooking, and the top software skill is Microsoft Excel. The most in-demand certification is a driver's license.
- **Education —** No formal education or a high school diploma are the typical entry-level education required for seven of the occupations. A postsecondary nondegree award is typically required for cooks, private household.
- **Supply —** Analysis of postsecondary completions in the region shows that on average 99 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 1,475 trained workers in the subregion and 4,007 workers in the region. The Center of Excellence recommends that Merced College work with the Retail, Hospitality, Tourism and Entertainment Regional Director, the college's advisory board, and local industry in the expansion of programs to address the shortage of culinary arts workers in the region.

Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Merced College to provide labor market information for culinary arts. The geographical focus for this report is the North Central Valley/Northern Mother Lode (NCV/NML) 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 NCV/NML subregion is $10.27/hour.[1] Analysis of the program and occupational data related to culinary arts resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 35-2014, Cooks, Restaurant
- 35-1012, First-Line Supervisors of Food Preparation and Serving Workers
- 11-9051, Food Service Managers
- 35-2012, Cooks, Institution and Cafeteria
- 35-1011, Chefs and Head Cooks
- 51-3011, Bakers
- 35-2019, Cooks, All Other
- 35-2013, Cooks, Private Household

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. Data was not available for Cooks, All Other.

Cooks, Restaurant
Job Description: 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.
Knowledge: Food Production, Customer and Personal Service, English Language, Production and Processing
Skills: Monitoring, Active Listening, Coordination, Critical Thinking, Speaking

First-Line Supervisors of Food Preparation and Serving Workers
Job Description: Directly supervise and coordinate activities of workers engaged in preparing and serving food.
Knowledge: Customer and Personal Service, Food Production, Production and Processing, Administration and Management, English Language
Skills: Coordination, Monitoring, Speaking, Active Listening, Service Orientation

Food Service Managers
Job Description: Plan, direct, or coordinate activities of an organization or department that serves food and beverages.
Knowledge: Customer and Personal Service, Administration and Management, English Language, Personnel and Human Resources, Education and Training
Skills: Service Orientation, Active Listening, Management and Personnel Resources, Monitoring, 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/.

Cooks, Institution and Cafeteria
Job Description: Prepare and cook large quantities of food for institutions, such as schools, hospitals, or cafeterias.
Knowledge: English Language, Food Production, Customer and Personal Service, Mathematics, Administration and Management
Skills: Judgement and Decision Making, Monitoring, Operation Monitoring, Quality Control Analysis, Service Orientation

Chefs and Head Cooks
Job Description: Direct and may participate in the preparation, seasoning, and cooking of salads, soups, fish, meats, vegetables, desserts, or other foods. May plan and price menu items, order supplies, and keep records and accounts.
Knowledge: Food Production, Production and Processing, Customer and Personal Service, Education and Training, Administration and Management
Skills: Monitoring, Coordination, Speaking, Management and Personnel Resources, Social Perceptiveness

Bakers
Job Description: Mix and bake ingredients to produce breads, rolls, cookies, cakes, pies, pastries, or other baked goods.
Knowledge: Production and Processing, Customer and Personal Service, Food Production, English Language, Mathematics
Skills: Monitoring, Active Learning, Active Listening, Coordination, Critical Thinking

Cooks, Private Household
Job Description: Prepare meals in private homes. Includes personal chefs.
Knowledge: Customer and Personal Service, Food Production, Sales and Marketing, Administration and Management, English Language
Skills: Critical Thinking, Service Orientation, Management of Material Resources, Active Learning, Active Listening

Occupational Demand

The North Central Valley/Northern Mother Lode subregion employed 11,161 workers in culinary arts occupations in 2019 (Exhibit 1). The largest occupation is cooks, restaurant with 3,873 workers in 2019. This occupation is projected to grow by 1% over the next five years and has the greatest number of projected annual openings, 557.

Exhibit 1. Culinary arts employment and occupational projections in the NCV/NML subregion

Occupation	2019 Jobs	2024 Jobs	5-Year Change	5-Year % Change	Annual Openings
Cooks, Restaurant	3,873	3,928	55	1%	557
First-Line Supervisors of Food Preparation and Serving Workers	3,172	3,244	72	2%	470
Food Service Managers	1,559	1,572	12	1%	167
Cooks, Institution and Cafeteria	1,028	1,087	59	6%	149
Chefs and Head Cooks	869	848	(21)	(2%)	104
Bakers	613	603	(10)	(2%)	76
Cooks, All Other	45	46	1	2%	6
Cooks, Private Household	<10	<10	Insf. Data	Insf. Data	1
TOTAL	**11,161**	**11,331**	**170**	**2%**	**1,531**

Wages

Exhibit 2 compares the entry-level and experienced wages of the culinary arts occupations. Food service managers earn the highest entry-level wage, $15.41/hour in the subregion and $15.68/hour in the region. Subregional wage data was not available for cooks, private household.

Exhibit 2. Entry-level and experienced wage comparison in the NCV/NML subregion and region

Occupation	NCV/NML Pct. 25 Hourly Wages	NCV/NML Median Hourly Wages	CVML Pct. 25 Hourly Wages	CVML Median Hourly Wages
Food Service Managers	$15.41	$21.82	$15.68	$21.14
Chefs and Head Cooks	$14.49	$23.75	$12.40	$14.38
First-Line Supervisors of Food Preparation and Serving Workers	$13.98	$16.32	$13.78	$17.01
Cooks, All Other	$13.79	$16.99	$13.12	$15.65
Cooks, Institution and Cafeteria	$13.71	$16.31	$13.32	$15.69
Cooks, Restaurant	$12.57	$14.09	$12.69	$14.31
Bakers	$12.29	$14.40	$13.87	$20.50
Cooks, Private Household	0	0	$15.60	$18.59

Job Postings

There were 1,584 job postings for the eight occupations in the NCV/NML subregion from August 2020 to January 2021.[2] The employers with the most job postings are listed in Exhibit 3.

Exhibit 3. Top employers of culinary arts by number of job postings

Employer	Job Postings	% Job Postings
Starbucks Coffee Company	62	4%
Taco Bell	57	4%
Panera Bread	55	4%
Pizza Hut	46	3%
Amazon	34	2%
Chili's	34	2%
The Save Mart Companies	34	2%
H&R Block	32	2%
Sonic Drive-In	31	2%
Burger King	30	2%

Exhibit 4 shows how job postings for the targeted occupations in the NCV/NML subregion are distributed across six O*NET OnLine occupations. The occupational title first-line supervisors of food preparation and serving workers is listed in 538 job postings. Note how this occupational title and food service managers dominate the job posting results. Common job titles in postings include cook in 113 job postings, assistant manager in 103 job postings, and general manager in 68 job postings.

Exhibit 4. Top occupational titles in job postings for culinary arts

Occupational Title	Job Postings	% of Job Postings
First-Line Supervisors of Food Preparation and Serving Workers	538	34%
Food Service Managers	520	33%
Cooks, Restaurant	348	22%
Bakers	125	8%
Chefs and Head Cooks	51	3%
Cooks, Institution and Cafeteria	2	0%

Salaries

Exhibit 5 shows the "Market Salaries" for culinary arts 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.

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[2] 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.

Exhibit 5. Salaries for culinary arts

Market Salary Percentile	Salary Amount
10th Percentile	$23,721
25th Percentile	$25,759
50th Percentile	$29,402
75th Percentile	$35,402
90th Percentile	$47,268

Education

Of the 1,584 job postings, 676 listed an education level preferred for the positions being filled. Among those, 87% requested high school or vocational training, 19% requested a bachelor's degree, and 15% requested an associate degree (Exhibit 6). A job posting can indicate more than one education level. Hence, the percentages shown in the chart below total more than 100%.
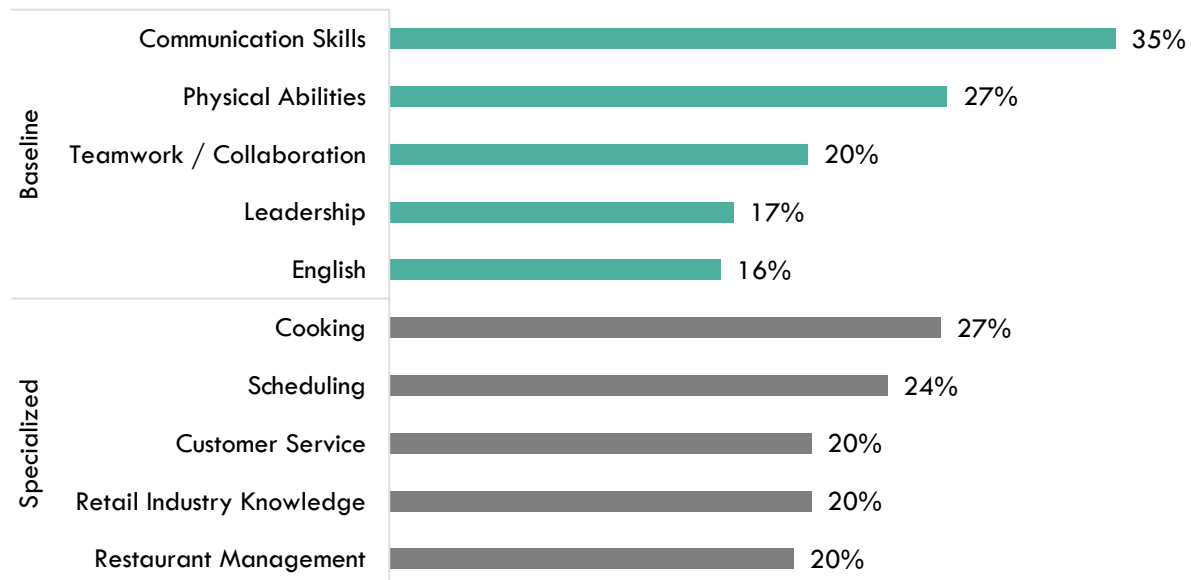
Exhibit 6. Education levels requested in job postings for culinary arts

Education Level	Job Postings	% of Job Postings
High school or vocational training	589	87%
Bachelor's degree	129	19%
Associate degree	101	15%
Master's degree	16	2%
Doctoral degree	1	0%

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, 35% of job postings, physical abilities, 27%, and teamwork/collaboration, 20%. The top three specialized skills are cooking, 27% of job postings, scheduling, 24%, and customer service, 20%.
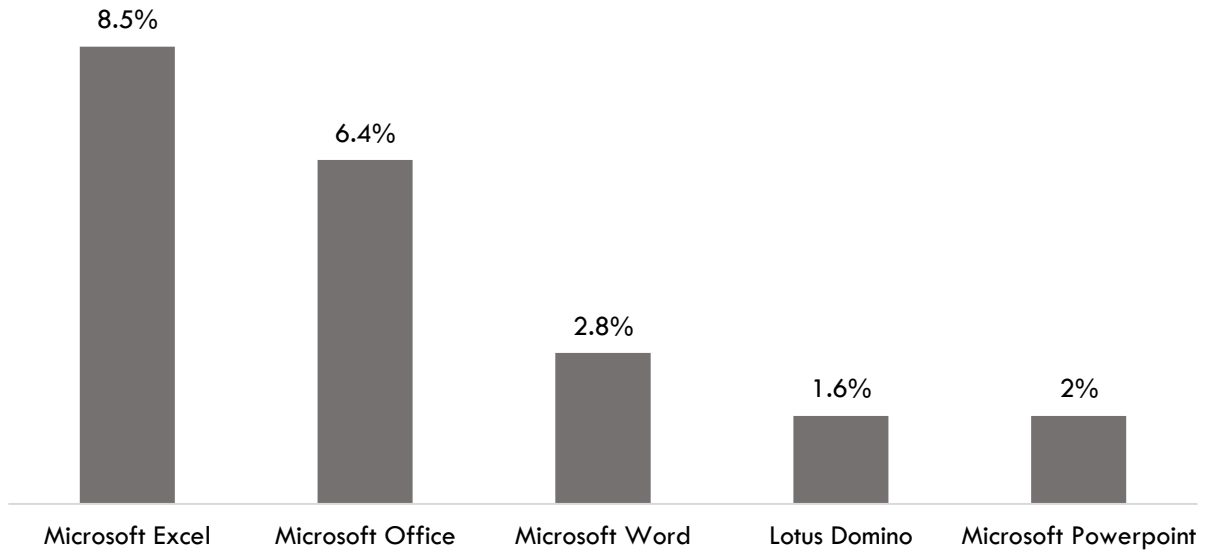
Exhibit 7. In-demand culinary arts baseline and specialized skills

Baseline Skills	%
Communication Skills	35%
Physical Abilities	27%
Teamwork / Collaboration	20%
Leadership	17%
English	16%

Specialized Skills	%
Cooking	27%
Scheduling	24%
Customer Service	20%
Retail Industry Knowledge	20%
Restaurant Management	20%

Software Skills

Analysis also included the software skills most in demand by employers. Microsoft Excel and Microsoft Office were the top two software skills identified in job postings (Exhibit 8).
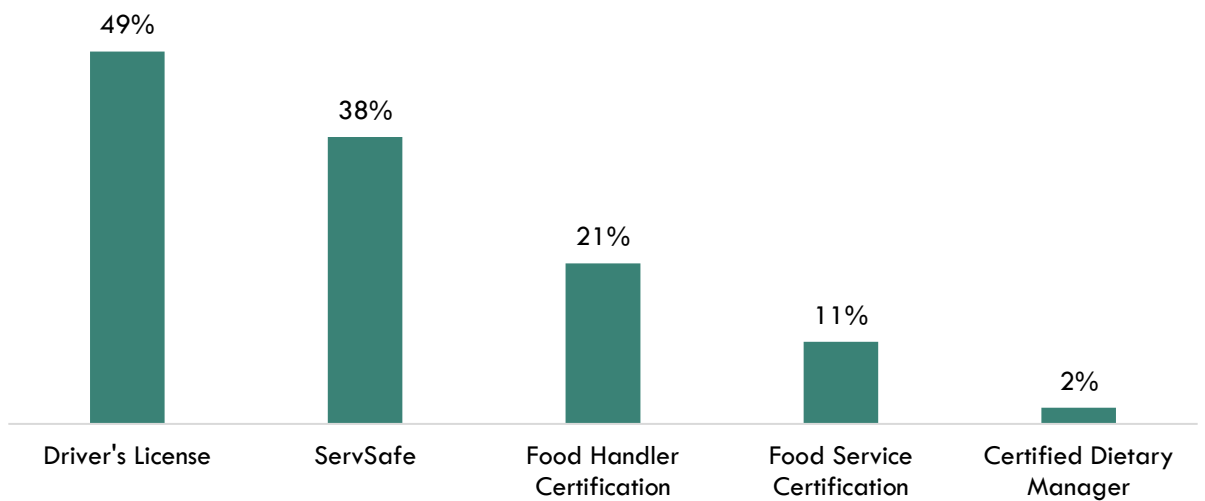
Exhibit 8. In-demand culinary arts software skills

8.5%	6.4%	2.8%	1.6%	2%
Microsoft Excel	Microsoft Office	Microsoft Word	Lotus Domino	Microsoft Powerpoint

Certifications

Of the 1,584 job postings, 423 contained certification data. Among those, 49% indicated a need for a driver's license. The next top certifications are ServSafe and Food Handler Certification (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 culinary arts certifications requested in job postings

49%	38%	21%	11%	2%
Driver's License	ServSafe	Food Handler Certification	Food Service Certification	Certified Dietary Manager

Education, Work Experience & Training

No formal education or a high school diploma are the typical entry-level education required for seven of the occupations (Exhibit 10). A postsecondary nondegree award is typically required for cooks, private household.

Exhibit 10. Education, work experience, training, and Current Population Survey results for culinary arts occupations[3]

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS
Cooks, Restaurant	No formal educational credential	Less than 5 years	Moderate-term	24.6%
First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	Less than 5 years	None	39.8%
Food Service Managers	High school diploma or equivalent	Less than 5 years	None	36.9%
Cooks, Institution and Cafeteria	No formal educational credential	None	Short-term	24.6%
Chefs and Head Cooks	High school diploma or equivalent	5 years or more	None	39.6%
Bakers	No formal educational credential	None	Long-term	29.1%
Cooks, All Other	No formal educational credential	None	Moderate-term	24.6%
Cooks, Private Household	Postsecondary nondegree award	Less than 5 years	None	24.6%

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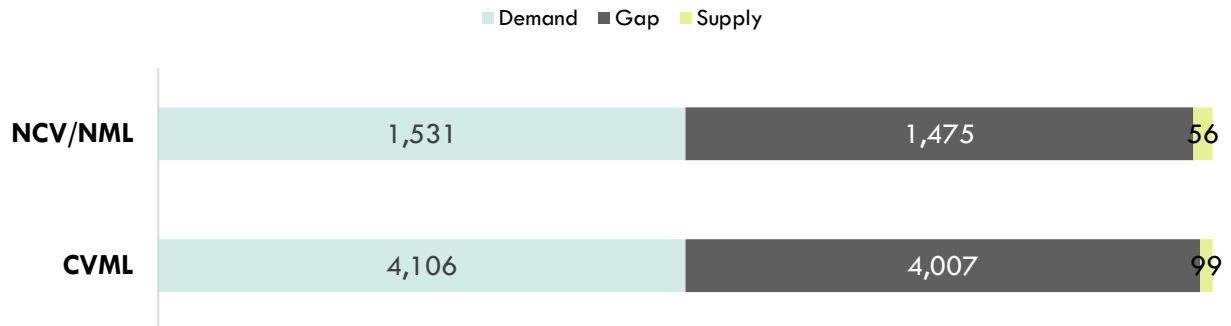
Supply

Analysis of program data from the California Community Colleges Chancellor's Office Data Mart included the TOP codes and titles: 130630 - Culinary Arts and 130700 - Hospitality. Analysis of the last three years of data shows that, on average, 99 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

Exhibit 11. Postsecondary supply for culinary arts occupations in the region

TOP Code - Title	Colleges	Associate Degree	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Subtotal
130630 - Culinary Arts	Bakersfield	16		11		27
	Columbia	2	3	4		9
	Merced	6	4			10
	Modesto	0				0
	San Joaquin Delta	21	24			46
	Sequoias		2		4	6
130700 - Hospitality	Columbia				1	1
TOTAL		**46**	**33**	**15**	**5**	**99**

There is an undersupply of 1,475 culinary arts workers in the NCV/NML subregion and 4,007 workers in the region (Exhibit 12).

Exhibit 12. Culinary arts workforce annual demand and supply in the NCV/NML subregion and region

Demand ■ Gap ■ Supply

Region	Demand	Gap	Supply
NCV/NML	1,531	1,475	56
CVML	4,106	4,007	99

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 culinary arts. There were 72 culinary arts students who received a degree or certificate or attained apprenticeship journey status and 18 who transferred; 40% of students obtained a job closely related to their field of study; 33% reported a median change in earnings, and 38% attained a living wage. By comparison, there were zero hospitality students who received a degree or certificate or attained apprenticeship journey status and 11 who transferred; 56% of students obtained a job closely related to their field of study; 42% reported a median change in earnings, and 46% attained a living wage.

Exhibit 13. Regional metrics for the TOP codes related to culinary arts

Metric	Hospitality 130700	Culinary Arts 130630
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	0	72
Number of Students Who Transferred	11	18
Job Closely Related to Field of Study	56%	40%
Median Change in Earnings	42%	33%
Attained a Living Wage	46%	38%
* denotes data not available.		

Conclusion

The entry-level wages of the eight occupations exceed the NCV/NML subregion's average living wage. There were 1,584 job postings in the past six months for occupations related to culinary arts 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 cooking.
- The top software skill is Microsoft Excel.
- The top certification is a driver's license.

There is an undersupply of trained workers, a shortage of 1,475 in the NCV/NML subregion and 4,007 in the region.

Recommendation

Based on these findings, it is recommended that Merced College work with the regional director, the college's advisory board, and local industry in the expansion or development of programs to address the shortage of culinary arts 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.