

# EWD Annual Report: Industries & Occupations in Demand

Labor Market Information Update for 2019-2020 PY

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## Industry Employment in Priority Sectors

In the table below, industry employment data details the current number of jobs in the state for eight of the 10 sectors as well as the growth or decline in jobs anticipated through 2024. Sectors are sorted in descending order by projected change for the three-year period. All priority sectors are anticipated to experience new job growth with the exception of Advanced Manufacturing which is projected to contract by about 34,300 jobs.<sup>1</sup> Also shown are the most recent total earnings per worker – an estimate of annual average earnings for the industry groupings as well as the same estimates adjusted for Cost of Living in California, and the estimated numbers of establishments (firms) in 2020.<sup>2</sup>

For community college planning, it is important to remember that industry employment data, such as that below, while an important measure of size and strength, reflects new job growth or anticipated decline across all jobs in the industry but does not show the estimated need for replacement workers which is an important measure of demand for assessing occupational training programs.

Sector	2019 Estimated Jobs	Projected Change (2019-2024)	% Change	Average Earnings, 2019 <sup>3</sup>	COL Adj. Earnings <sup>4</sup>	# of Firms in 2020
Health	1,779,419	177,580	10%	\$89,066	\$65,538	94,970
Retail, Hospitality & Tourism	3,953,466	153,196	4%	\$41,226	\$30,335	224,673
Information and Communications Technology/Digital Media	1,130,372	133,781	12%	\$191,388	\$140,830	61,821
Advanced Transportation & Logistics	1,073,937	98,398	9%	\$67,538	\$49,696	54,841
Energy, Utility and Construction	1,617,761	87,132	5%	\$108,123	\$79,561	107,025
Life Sciences/Biotechnology	932,411	73,492	8%	\$125,090	\$92,045	23,757
Agriculture, Water and Environmental Technologies	657,764	19,111	3%	\$56,468	\$41,552	31,617
Advanced Manufacturing	1,368,842	(34,328)	(3%)	\$118,229	\$86,997	44,689
<b>All Industries in California<sup>5</sup></b>	<b>20,064,291</b>	<b>1,042,680</b>	<b>5%</b>	<b>\$82,770</b>	<b>\$60,905</b>	<b>1,606,483</b>

<sup>1</sup> All employment data in this report provided by Economic Modeling Specialists International (EMSI), 2020.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed. Totals are not representative of all industry employment or firms in California.

<sup>2</sup> EMSI 2020.4 count of firms reflects Quarterly Census of Employment and Wages (QCEW) totals for the first quarter of 2020.

<sup>3</sup> Also called “Wages Salaries & Proprietor Earnings”, average annual earnings is the result of total pre-tax industry earnings divided by same-year industry employment. Earnings are defined as labor-related personal income—that is, income from work. Income from stock dividends or interest, rents, Social Security and other non-work sources are not included.

<sup>4</sup> Emsi’s total earnings, adjusted by the C2ER Cost of Living Index (COLI). The Cost of Living index is based off a 100 base scale, so to adjust the earnings, Emsi first divides their total earnings estimate by the COLI and then multiplies the result by 100.

<sup>5</sup> Industry subsectors overlap within priority groupings causing duplication in the data and many additional subsectors are not included in any priority grouping, therefore calculating a ‘sum of industry groupings’ is not recommended.

## Occupational Employment Outlook in California (2019-2024): Select Occupations by Sector

In the section to follow, **select occupations** are profiled for the 2019-2024 period – these are examples of occupations generally associated with the priority sectors and that have established community college application. Occupations are arranged in descending order by annual openings. Although chosen for their relevance to one sector, the data that follow represent employment estimates, projections and wages for the occupation across all industries.

### Agriculture, Water & Environmental Technologies – Example Occupations

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages <sup>6</sup>	COL Median Annual Wages <sup>7</sup>
Veterinary Technologists and Technicians	9,928	1,318	4,220	6,614	1,102	\$41,691	\$30,678
Environmental Science and Protection Technicians, Including Health	5,941	293	3,607	4,675	779	\$50,773	\$37,360
Agricultural and Food Science Technicians	5,049	131	3,089	3,894	649	\$43,416	\$31,947
Environmental Engineering Technologists and Technicians	3,590	152	1,772	2,315	386	\$55,962	\$41,179
Agricultural Inspectors <sup>†</sup>	2,400	91	1,781	2,254	376	\$41,371	\$30,442

### Life Sciences/Biotechnology – Example Occupations

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
Clinical Laboratory Technologists <sup>†</sup> and Technicians	28,374	2,767	9,254	14,333	2,389	\$58,135	\$42,778
Biological Technicians <sup>†</sup>	9,865	774	5,353	7,302	1,217	\$51,958	\$38,233
Life, Physical, and Social Science Technicians, All Other	8,927	484	5,432	7,082	1,180	\$56,477	\$41,558
Chemical Technicians	6,506	248	3,310	4,284	714	\$47,174	\$34,713
Environmental Science and Protection Technicians, Including Health	5,941	293	3,607	4,675	779	\$50,773	\$37,360

<sup>†</sup>The typical entry level education needed for this occupation is a Bachelor’s degree. Other pathways are always possible; however, a large proportion of workers in the occupation over the age of 25 report having attained a Bachelor’s degree or higher (40% or more).

<sup>6</sup> Occupational wage data come from the BLS’s OES dataset. It is collected from the employer’s perspective, meaning earnings data is pre-tax (individual employees’ tax withholdings will vary, so earnings are reported pre-tax). Occupation earnings include the following: base rate, commissions, cost of living allowances, deadheading pay, guaranteed pay, hazard pay, incentive pay, longevity pay, over-the-road pay, piece rates, portal-to-portal rates, production bonuses, and tips.

<sup>7</sup> OES occupational wage data adjusted by the C2ER Cost of Living Index (COLI). The Cost of Living index is based off a 100 base scale, so to adjust the earnings, Emsi first divides their total earnings estimate by the COLI, then multiplies the result by 100. The index is comprised of six major categories: grocery items, housing, utilities, transportation, health care, and miscellaneous goods and services.

### Energy Efficiency, Utilities & Construction – Example Occupations

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
Carpenters	155,318	7,359	81,510	107,214	17,869	\$53,026	\$39,019
Electricians	84,076	8,599	50,758	71,872	11,979	\$63,065	\$46,405
Plumbers, Pipefitters, and Steamfitters	55,918	4,788	32,019	44,312	7,385	\$55,834	\$41,085
Construction Managers	52,862	3,117	19,477	27,241	4,540	\$87,682	\$64,519
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	35,395	3,318	17,945	25,548	4,258	\$55,074	\$40,525
Telecommunications Line Installers and Repairers	15,608	93	8,681	11,054	1,842	\$66,158	\$48,682

### Healthcare – Example Occupations

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
Registered Nurses	311,651	27,439	85,313	134,144	22,357	\$110,323	\$81,180
Nursing Assistants	108,099	10,788	62,761	88,324	14,721	\$34,757	\$25,575
Medical Assistants	100,467	10,740	57,533	82,133	13,689	\$37,650	\$27,704
Licensed Practical and Licensed Vocational Nurses	72,049	6,775	28,314	42,000	7,000	\$59,000	\$43,414
Dental Assistants	58,355	4,226	33,540	45,413	7,569	\$41,319	\$30,404
Radiologic Technologists and Technicians	17,937	1,607	5,092	7,974	1,329	\$84,652	\$62,290

### Information & Communications Technology/Digital Media (ICT-DM) – Example Occupations

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
Office Clerks, General	380,476	5,822	229,593	284,226	47,371	\$37,268	\$27,423
Computer User Support Specialists	92,513	8,810	39,342	57,421	9,570	\$65,267	\$48,026
Network and Computer Systems Administrators†	35,367	2,523	12,712	18,117	3,020	\$94,704	\$69,687
Computer Network Support Specialists	19,316	1,734	8,197	11,856	1,976	\$71,193	\$52,387
Information Security Analysts†	9,858	2,267	3,815	7,252	1,209	\$112,131	\$82,510

†The typical entry level education needed for this occupation is a Bachelor's degree. Other pathways are always possible; however, a majority of workers in the occupation over the age of 25 report having attained a Bachelor's degree or higher (56% or more).

### Advanced Manufacturing – Example Occupations

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
Machinists	37,440	604	19,245	24,086	4,014	\$45,280	\$33,318
Welders, Cutters, Solderers, and Brazers	32,508	1,093	18,141	23,155	3,859	\$43,993	\$32,372
Industrial Machinery Mechanics	28,938	1,217	13,564	17,745	2,957	\$59,039	\$43,443
Calibration Technologists and Technicians, Except Drafters, All Other	12,346	349	6,071	7,731	1,289	\$68,219	\$50,198
Electrical and Electronics Repairers, Commercial and Industrial Equipment	6,278	93	2,750	3,472	579	\$61,482	\$45,241
Industrial Engineering Technologists and Technicians	5,090	141	2,505	3,193	532	\$61,536	\$45,281

### Retail, Hospitality and Tourism – Example Occupations

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
General and Operations Managers†	269,154	16,120	119,883	162,143	27,024	\$112,487	\$82,772
First-Line Supervisors of Retail Sales Workers	156,726	(1,141)	85,887	104,378	17,396	\$40,099	\$29,506
Human Resources Specialists†	78,864	3,753	40,167	52,650	8,775	\$69,770	\$51,339
Food Service Managers	56,360	2,734	32,958	43,177	7,196	\$50,266	\$36,987
Buyers and Purchasing Agents†	50,015	(765)	25,854	31,372	5,229	\$68,434	\$50,356
Meeting, Convention, and Event Planners†	19,637	1,402	11,521	15,472	2,579	\$55,208	\$40,624

### Advanced Transportation and Logistics – Example Occupations

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
Automotive Service Technicians and Mechanics	85,532	(250)	41,413	50,902	8,484	\$44,102	\$32,452
First-Line Supervisors of Mechanics, Installers, and Repairers	43,307	2,114	20,318	26,786	4,464	\$78,202	\$57,544
Logisticians†	33,287	1,263	16,073	20,863	3,477	\$81,439	\$59,926
Bus and Truck Mechanics and Diesel Engine Specialists	25,628	1,431	12,194	16,296	2,716	\$55,596	\$40,909
Transportation, Storage, and Distribution Managers	20,776	1,039	8,383	11,245	1,874	\$95,696	\$70,417
Automotive Service Technicians and Mechanics	85,532	(250)	41,413	50,902	8,484	\$44,102	\$32,452

†The typical entry level education needed for this occupation is a Bachelor's degree. Other pathways are always possible; however, a large proportion of workers in the occupation over the age of 25 report having attained a Bachelor's degree or higher (42% or more).

## Global Trade & Logistics

In 2018, California goods exports were valued at \$178 billion, an increase of 23% over 10 years, with traded goods to Mexico, Canada, China, Japan and South Korea leading the market. Top export categories include aircraft engines and parts, semiconductor devices, almonds, electric vehicles, petroleum, and pistachios.

- In 2018, California goods exports accounted for 6% of the state’s gross domestic product.
- California is the country’s largest agricultural exporting state, shipping \$23.1 billion in domestic agricultural exports abroad in 2017 (latest year available).
- In 2016 (latest year available), goods exports activities in California supported about 684,000 jobs.
- An estimated 72,665 companies exported from California locations in 2016 (latest year available).
  - Of those, 96% were small and medium sized enterprises with fewer than 500 employees.
  - Small and medium-sized firms generated over two-fifths (43%) of California's total exports of merchandise in 2016.

Foreign investment drives job creation as well. In 2015 (latest year available), an estimated 769,200 California workers were employed by foreign-controlled companies, led by Japan, the United Kingdom, and France.

**Source:** Office of the United States Trade Representative, online at <https://ustr.gov/issue-areas/economy-trade>. Sources include resources from the U.S. Department of Commerce’s International Trade Administration, Department of Agriculture, Bureau of the Census, and Bureau of Economic Analysis.

### Global Trade & Logistics – Example Occupations\*

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
Project Management Specialists and Business Operations Specialists, All Other†	216,436	10,589	105,954	139,172	23,195	\$75,758	\$55,745
Market Research Analysts and Marketing Specialists†	106,154	12,149	56,670	82,334	13,722	\$70,243	\$51,688
Shipping, Receiving, and Inventory Clerks	91,374	691	45,422	57,102	9,517	\$34,936	\$25,707
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products†	42,304	1,058	22,446	28,681	4,780	\$85,218	\$62,707
Web Developers and Digital Interface Designers	28,381	3,356	11,304	17,451	2,908	\$73,983	\$54,439

\*Within traditional occupations, some portion of each may support global trade or require global trade expertise. Related job titles found within these occupations include accounting analysts, import clerks, public relations specialists, social media specialists, financial analysts, e-commerce managers, customs brokers, social media managers and international banking specialists.

†The typical entry level education needed for this occupation is a Bachelor’s degree. Other pathways are always possible; however, a majority of workers in the occupation over the age of 25 report having attained a Bachelor’s degree or higher (49% or more).

## Business & Entrepreneurship

In the third quarter of 2019, there were close to 1.6 million non-farm businesses in California, supporting more than 17.6 million employees.

- Of these, 90% or about 1.4 million reported employing fewer than 20 employees. In total, firms with fewer than 20 employees accounted for approximately 4.3 million jobs and supported about 18% of all payroll generated in California.
- In the smallest firm category (fewer than five employees), 1.1 million businesses represented about 1.4 million jobs throughout the state.

**Source:** California Employment Development Department, Labor Market Information Division's Size of Business Data for California, Third Quarter, 2019. Online at: [http://www.labormarketinfo.edd.ca.gov/LMID/Size\\_of\\_Business\\_Data.html/](http://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data.html/).

### Business & Entrepreneurship – Example Occupations:

Occupation	2018 Jobs	Projected Change	Replacements	Total Openings	Annual Openings	Median Annual Wages	COL Median Annual Wages
Customer Service Representatives	218,899	7,465	147,429	185,984	30,997	\$38,857	\$28,593
Bookkeeping, Accounting, and Auditing Clerks	204,388	557	119,634	146,229	24,372	\$47,121	\$34,673
First-Line Supervisors of Office and Administrative Support Workers	173,297	2,758	91,496	113,414	18,902	\$60,293	\$44,366
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	161,046	(2,170)	84,184	103,321	17,220	\$61,250	\$45,070
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	147,178	7,612	95,349	124,503	20,751	\$58,388	\$42,964
Payroll and Timekeeping Clerks	23,093	(22)	12,683	15,490	2,582	\$53,325	\$39,238

## COVID-19 Implications on Employment Data and Projection Modeling

This report includes employment estimates and projection data modeled by EMSI. All industry and occupational 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.

It is important to remember that employment projections are a projection and not a forecast. The distinction emphasizes purpose and results. Projections use a set of assumptions to determine long-term underlying trends, whereas forecasts focus on predicting actual outcomes in the near term. The assumptions that underlie industry and occupational projections are designed to provide a neutral backdrop so that a focused analysis of the long-term trends can take place. Projections are forward projections of past employment trends. They do not take into account any legislation, current events, or nonemployment factors.

- **Do EMSI's employment projections incorporate COVID-19 effects?**

The effects of COVID-19 on all employment data and projections, including EMSI's data included here, will be introduced gradually. Changes in recorded employment will affect projections. They will only change as historical employment data reported in the BLS's QCEW dataset changes. The effects of the coronavirus layoffs will begin appearing in QCEW 2020Q1 data. This data is incorporated into EMSI's 2020.4 datarun used here. The effect on projections will likely be slight initially but will increase over time as more quarters of 2020 QCEW data become available. As more data comes in showing job loss, each datarun's projections will likely decline progressively in comparison with the prior datarun's projections (e.g. an occupation with 10-year projected job growth of 100 in the 2020.3 datarun might show growth of 90 in the 2020.4 datarun, 50 in the 2021.1 datarun, and so on).

- **How are openings and replacements data affected by COVID-19?**

Replacement data comes from the Bureau of Labor Statistics (BLS) and is published every two years. This dataset is simply a national-level estimate of the percent of each occupation that needs to be replaced every year. EMSI multiplies job counts by these replacement rates to arrive at the number of replacement jobs. The next update to replacement rates is not due to be released until Fall 2021, and it is too soon to say what (if anything) the BLS may do to try to model the effects of the COVID-19 shutdowns on replacement needs. EMSI's Openings counts are simply replacement jobs plus jobs due to growth. Openings will reflect COVID-19 changes to the extent that they show up in employment data (from QCEW, effects beginning to show in 2020.4 datarun) and replacements data (possibly no effects shown; data from BLS released late 2021).